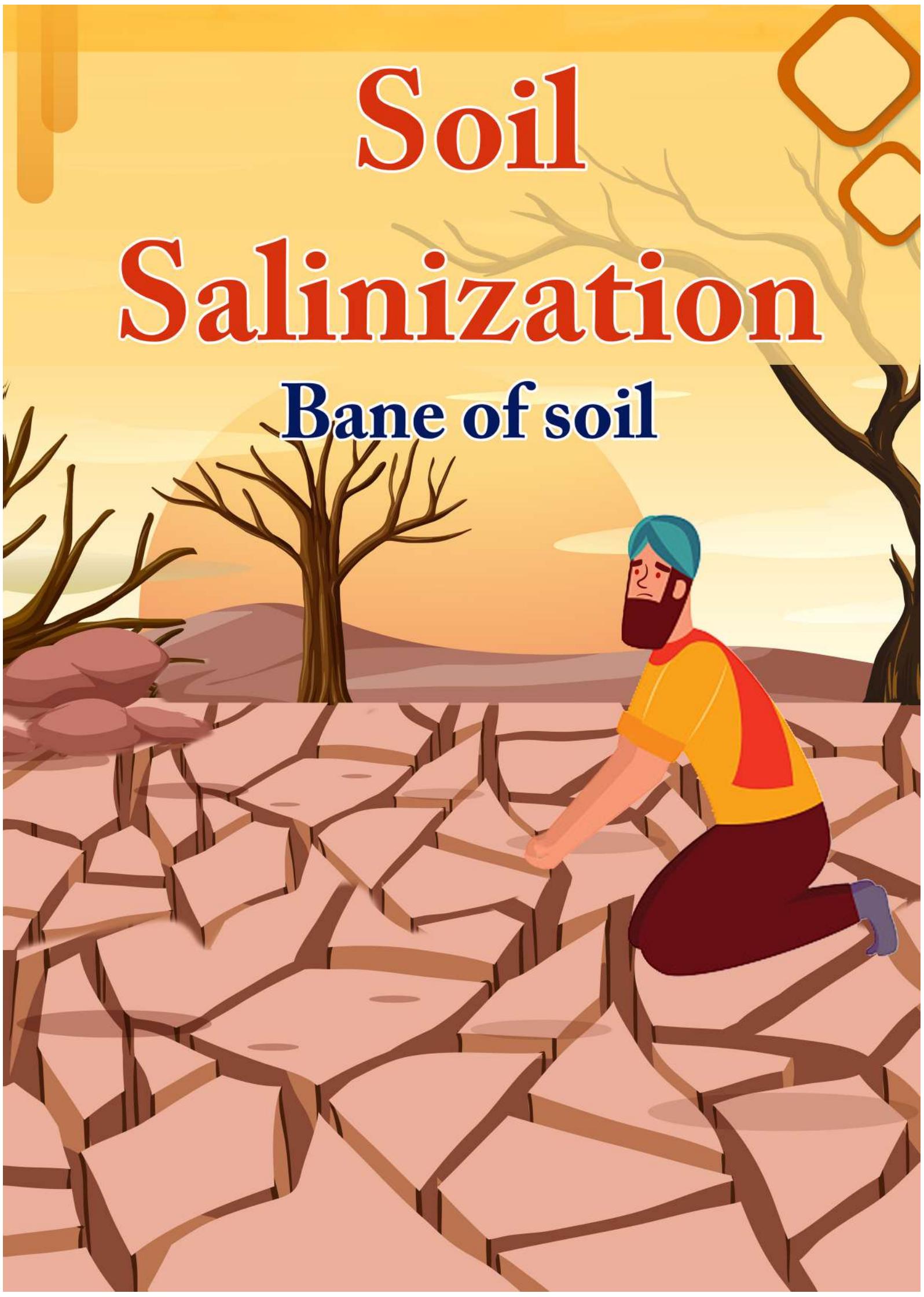


Soil Salinization

Bane of soil

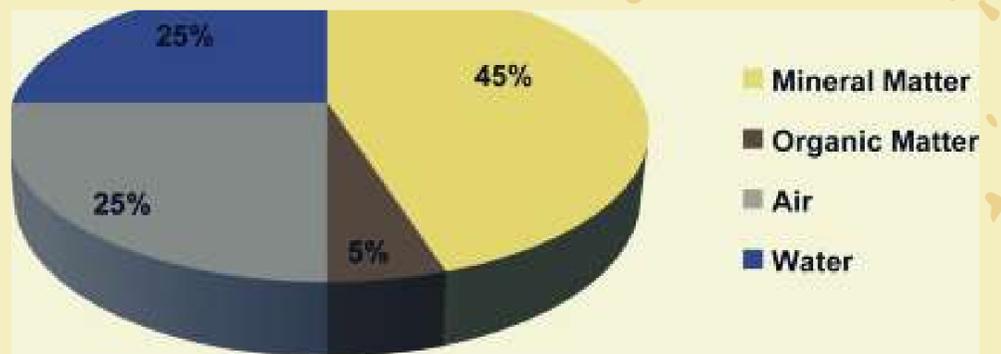


HELLO! TODAY I AM GOING TO VISIT MY NATIVE PLACE FOR CONDUCTING AN AWARENESS PROGRAM ON SOIL HEALTH

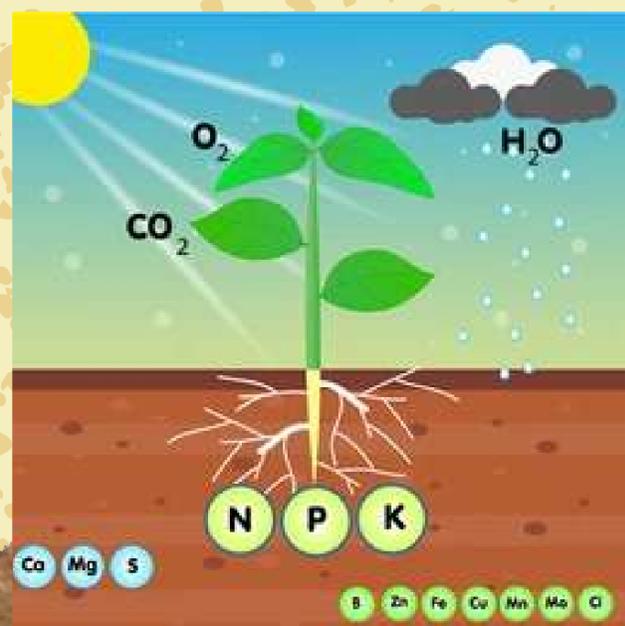


HELLO! I AM DR. SCIENTIST
I AM HERE TO CONDUCT AWARENESS PROGRAM ON SOIL HEALTH
FIRSTLY I WANT TO GIVE A BRIEF INTRODUCTION ABOUT SOIL

SOIL IS THE LOOSE SURFACE MATERIAL THAT COVERS MOST LAND.
IT CONSISTS OF INORGANIC PARTICLES AND ORGANIC MATTER
SOIL IS A MATERIAL COMPOSED OF FIVE INGREDIENTS MINERALS, SOIL ORGANIC MATTER, LIVING ORGANISMS, GAS, AND WATER.



SOIL IS A MAJOR SOURCE OF NUTRIENTS NEEDED BY PLANTS FOR GROWTH. THE THREE MAIN NUTRIENTS ARE NITROGEN (N), PHOSPHORUS (P) AND POTASSIUM (K). TOGETHER THEY MAKE UP THE TRIO KNOWN AS NPK. OTHER IMPORTANT NUTRIENTS ARE CALCIUM, MAGNESIUM AND SULFUR

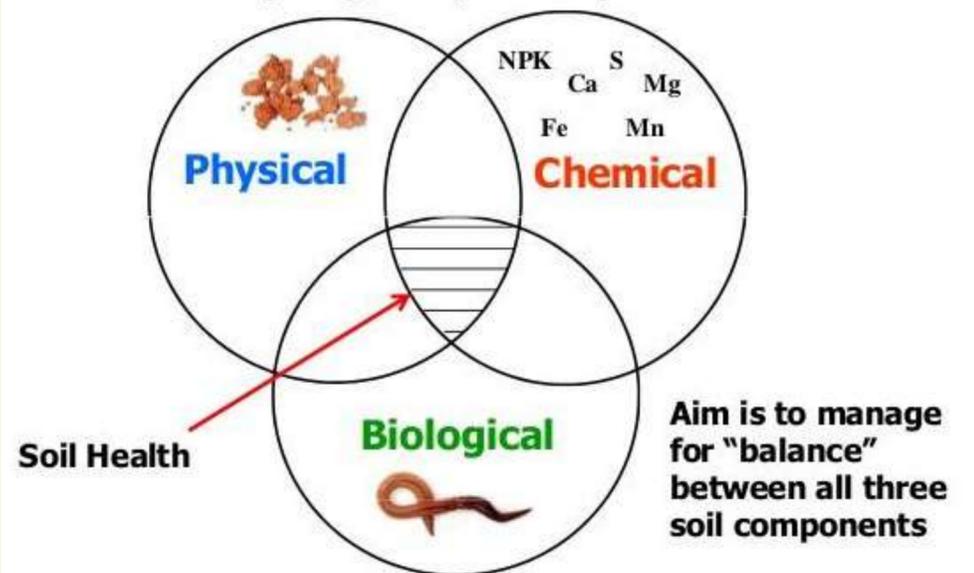




SOIL HEALTH IS FUNDAMENTAL FOR HEALTHY FOOD PRODUCTION. IT PROVIDES ESSENTIAL NUTRIENTS, WATER, OXYGEN, AND SUPPORT TO THE ROOTS, ALL ELEMENTS THAT FAVOR THE GROWTH AND DEVELOPMENT OF PLANTS FOR FOOD PRODUCTION. ... SOIL IS THE BASIS OF FOOD SYSTEMS AS WELL AS THE PLACE WHERE ALL PLANTS FOR FOOD PRODUCTION GROW

SOIL HEALTH HAS BEEN DEFINED AS "THE CONTINUED CAPACITY OF SOIL TO FUNCTION AS A VITAL LIVING SYSTEM, WITHIN AN ECOSYSTEM AND LAND-USE BOUNDARIES, TO SUSTAIN BIOLOGICAL PRODUCTIVITY, PROMOTE THE QUALITY OF AIR AND WATER ENVIRONMENTS, AND MAINTAIN PLANT, ANIMAL, AND HUMAN HEALTH

Soil quality is the capacity of a soil to function (in a farm or ecosystem) and thereby sustain productivity, maintain environmental quality, and promote plant and animal health



SIR, I WANT TO KNOW THE REASON WHY MY SOIL HAS BECOME WHITE IN COLOR AND MY PLANTS ARE DROOPING



MINE TOO...



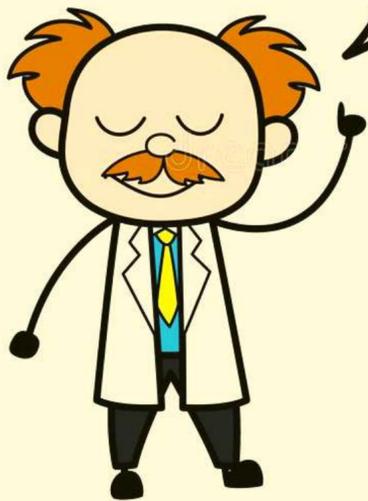
IT'S BECAUSE OF SOIL SALINIZATION...



SOIL SALINIZATION IS THE ACCUMULATION OF FREE SALTS TO SUCH AN EXTENT THAT IT LEADS TO THE DEGRADATION OF SOIL AND VEGETATION

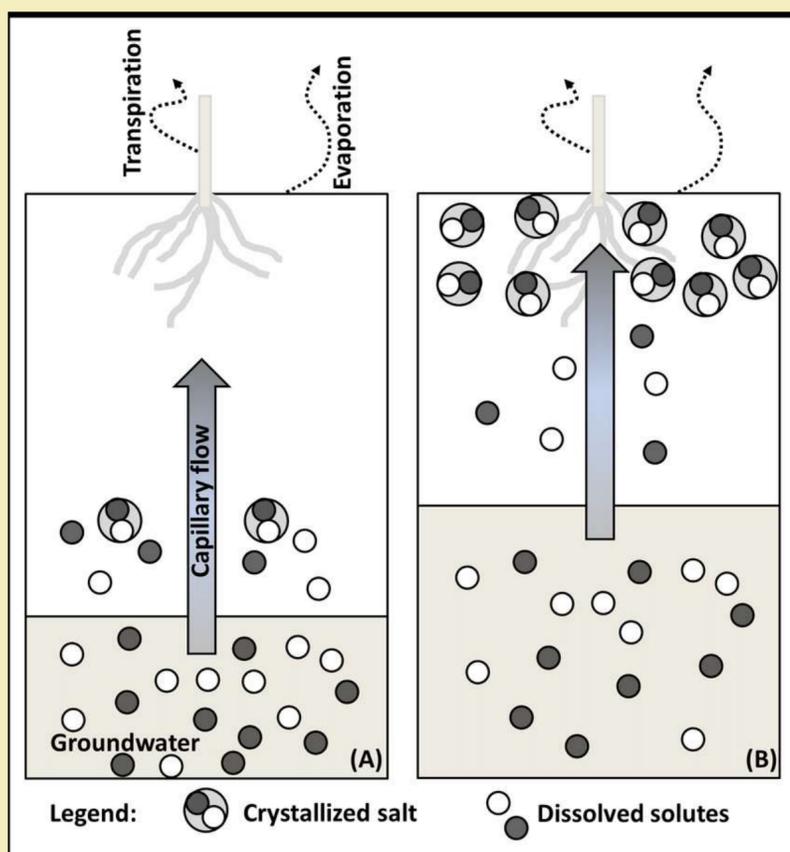
SOIL SALINIZATION OCCURS WHEN SOLUBLE SALTS ARE ABSORBED AND CONTINUE TO HOLD IN THE EARTH. IT OCCURS EITHER NATURALLY OR BY IMPROPER HUMAN ACTIVITIES.

causes are

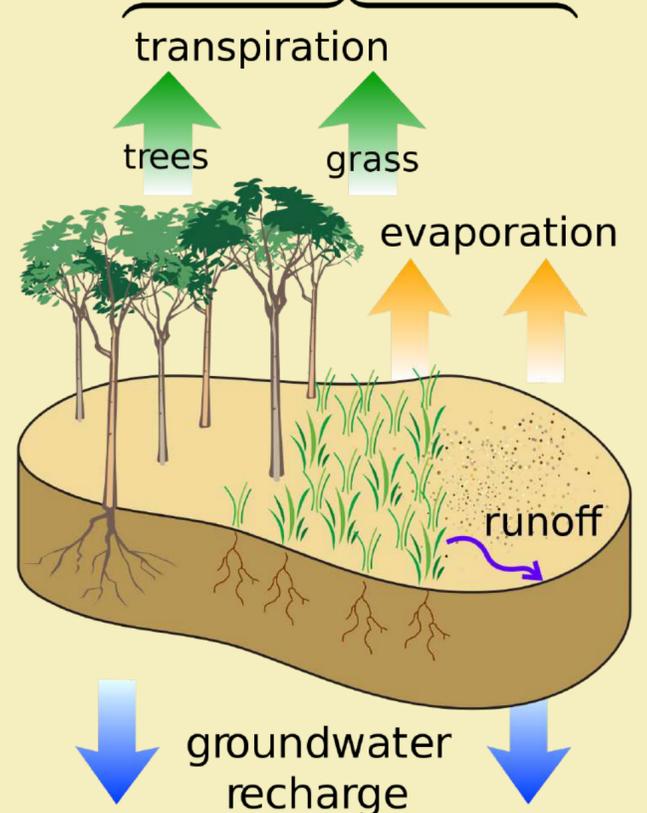


DRY CLIMATES AND LOW PRECIPITATION

HIGH EVAPORATION RATE WHICH ADDS SALTS TO THE GROUND



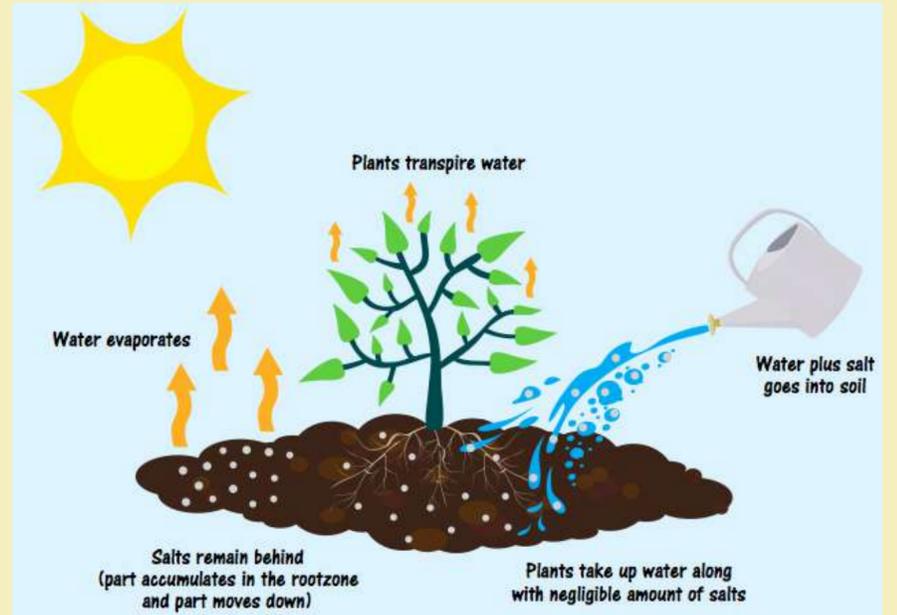
evapotranspiration =
transpiration + evaporation



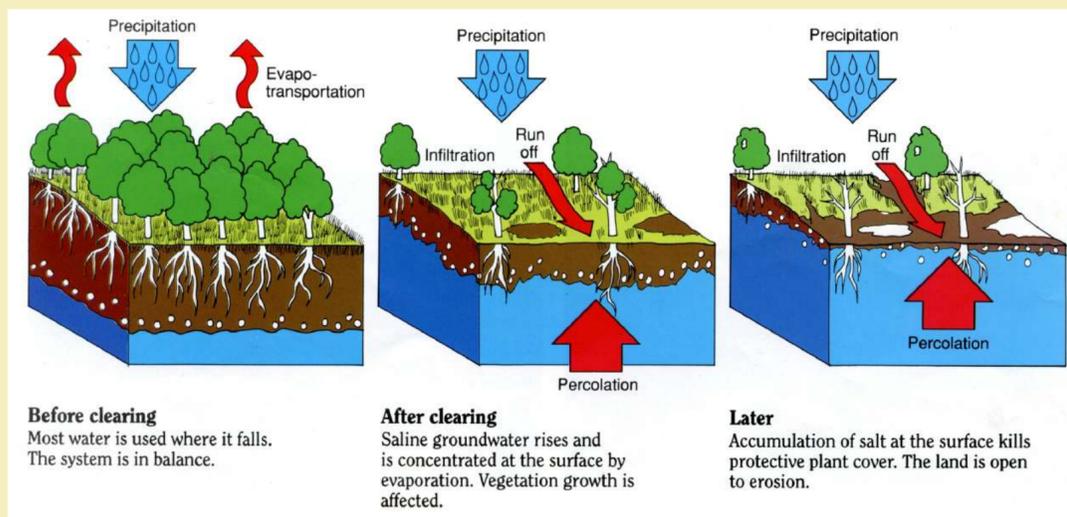
POOR DRAINAGE OR WATERLOGGING



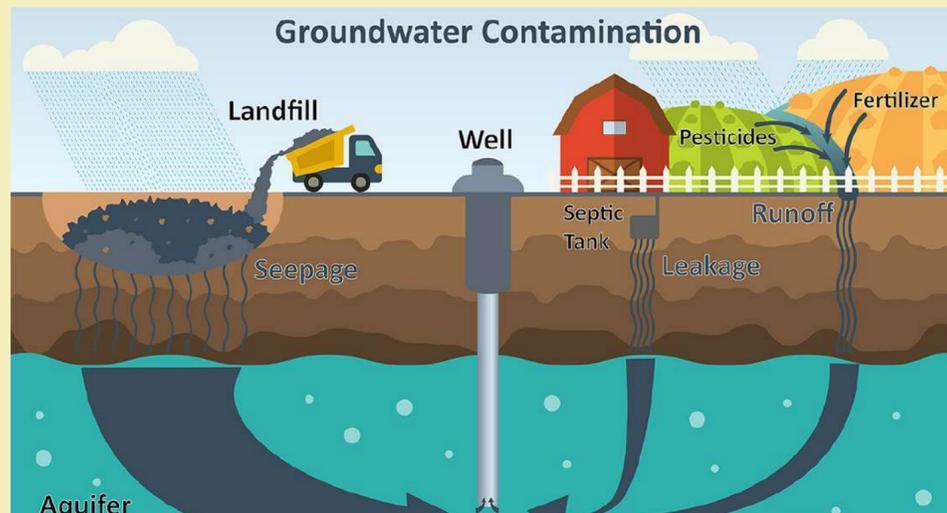
IRRIGATION WITH SALT-RICH WATER ADDS SALT TO THE EARTH



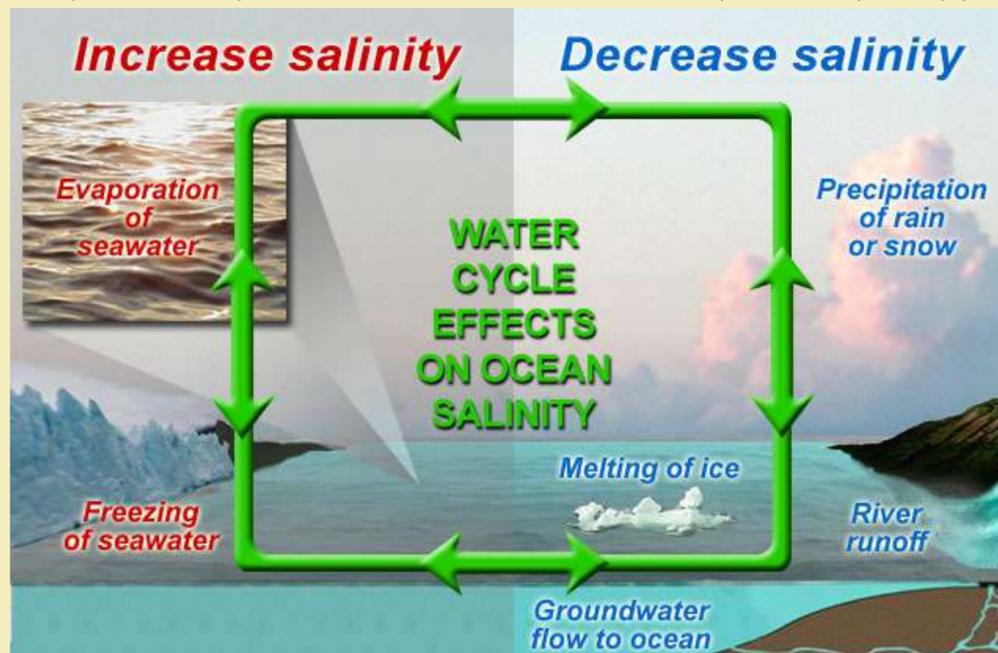
REMOVAL OF DEEP-ROOTED VEGETATION



LEAKAGE FROM THE GEOLOGICAL DEPOSITS AND PENETRATION INTO GROUNDWATER.



WHEN THE SEA LEVEL INCREASES THEN THE SEA SALTS WILL ACCUMULATE INTO THE LOW LANDS. THE BREEZES IN THE COASTAL AREAS WILL BLOW THE SALTY AIR MASSES TO THE NEARBY TERRITORIES. SEAWATER SUBMERGENCE FOLLOWED BY SALT EVAPORATION



NOW I AM GOING TO TELL EXAMPLE OF 2 FARMERS WHO WE'RE HAVING THE SAME BACKGROUND OF 10 ACRES FIELD AND FAMILY STATUS



SHYAM



RAM

BOTH THE FARMERS HAVE FACED THE SAME PROBLEM OF SOIL SALINIZATION. AMONG ONE OF THEM HAVE FOLLOWED THE MANAGEMENT PRACTICES, WHICH I HAVE TOLD THEM TO DO AND THE OTHER DID NOT FOLLOW

NOW LET'S SEE HOW ONE OF THE FARMERS GOT BENEFITTED BY FOLLOWING THE MANAGEMENT PRACTICES THAT IS SHYAM

MANAGEMENT PRACTICES FOLLOWED BY SHYAM -

GYP SUM APPLICATION

SCRAPPING

LEACHING

FLUSHING

MULCHING

GROWING OF COVER CROPS

APPLYING FERTILIZERS RATIONALLY

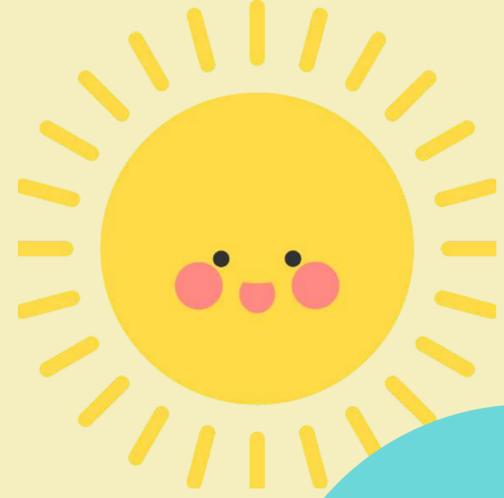
GROWING CROPS THAT ABSORB MOISTURE PROPERLY TO AVOID PROLONGED WETNESS OF THE LAND



MULCHING



SCRAPPING



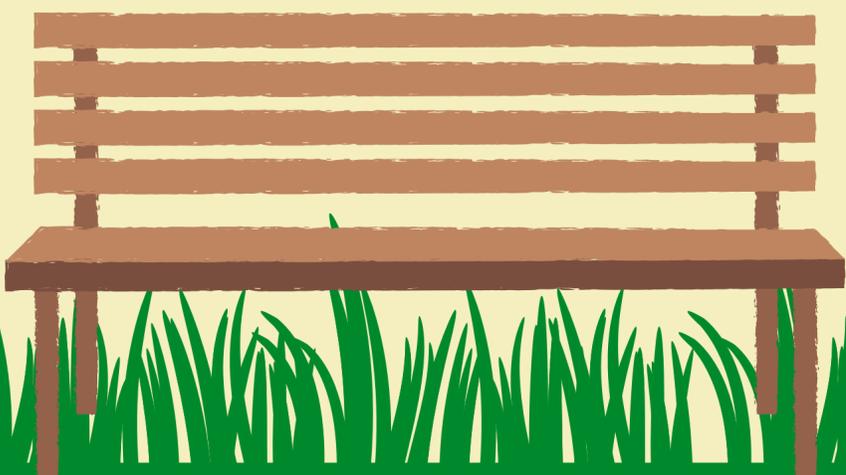
1. MULCHING : IT IS A PROCESS OF COVERING SOIL TO MAKE MORE FAVORABLE CONDITIONS FOR PLANT GROWTH AND CONDITIONS.

2. LEACHING: IT IS THE LOSS OF WATER SOLUBLE PLANT NUTRIENTS FROM THE SOIL

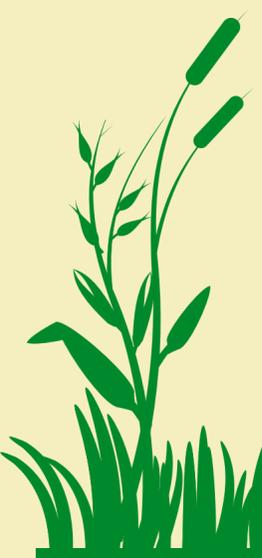
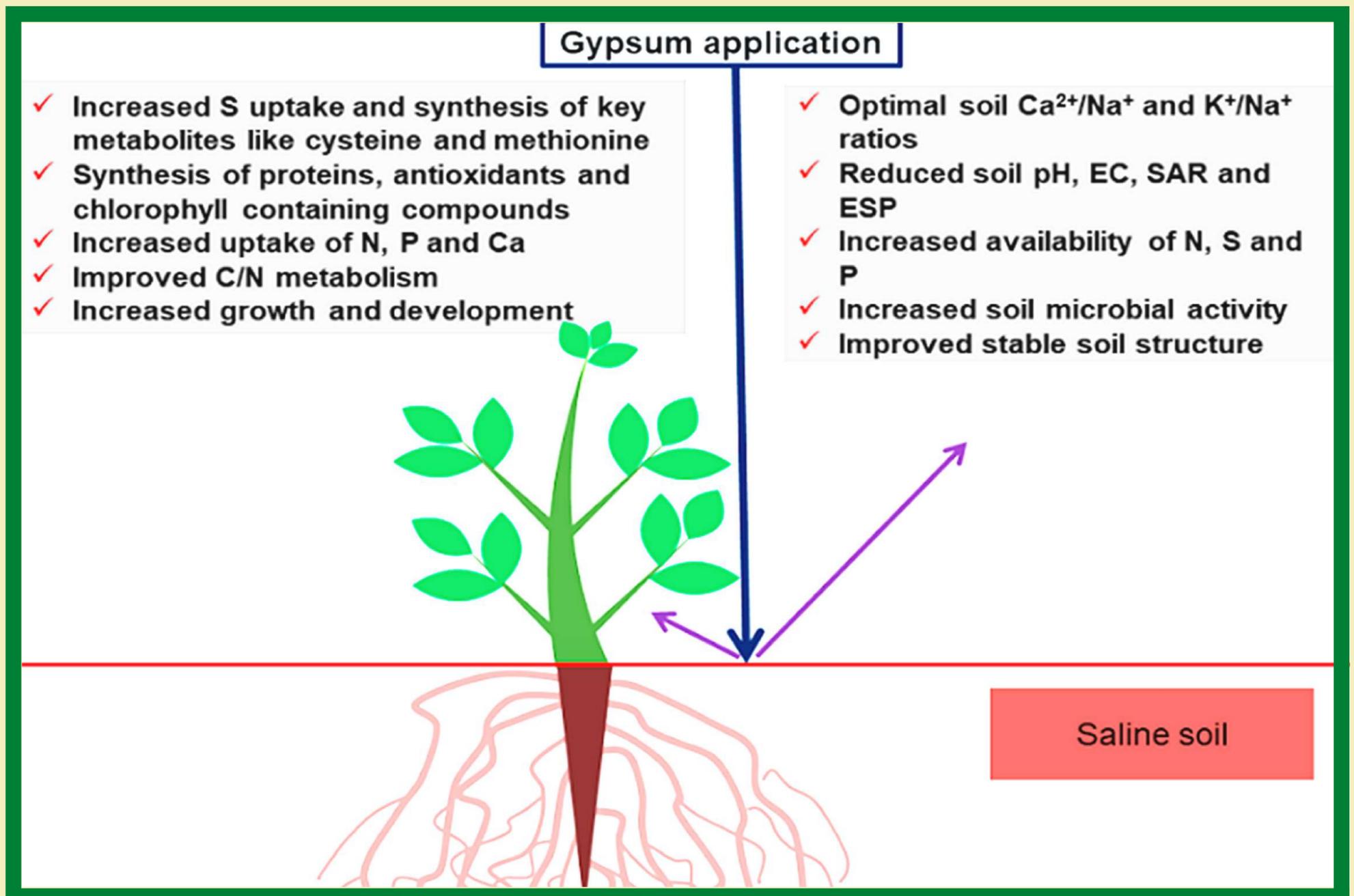
3. SCRAPPING: BREAKDOWN OF THE HARD SURFACE LAYER OF THE SOIL

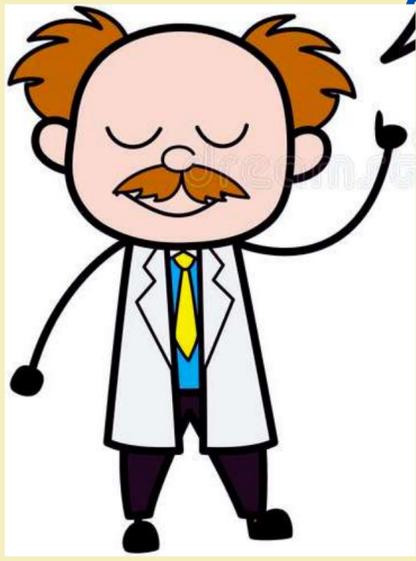


4. COVER CROPS: ARE THE PLANTS THAT ARE PLANTED TO COVER THE SOIL RATHER THAN THE PURPOSE OF BEING HARVESTED



GYPSUM IS THE NAME GIVEN TO A MINERAL CATEGORIZED AS CALCIUM SULFATE MINERAL, AND ITS CHEMICAL FORMULA IS CALCIUM SULFATE DIHYDRATE, $CaSO_4 \cdot 2H_2O$.





AS HE FOLLOWED THE ABOVE PRACTICES, SOIL RECLAMATION IS DONE HE GOT MORE YIELD AND PROFIT, AND HIS FAMILY IS ECONOMICALLY BENEFITTED.



RAM FACED MANY EFFECTS BY NOT FOLLOWING THE ABOVE-MENTIONED MANAGEMENT PRACTICES

THE EFFECTS HE FACED ARE.....

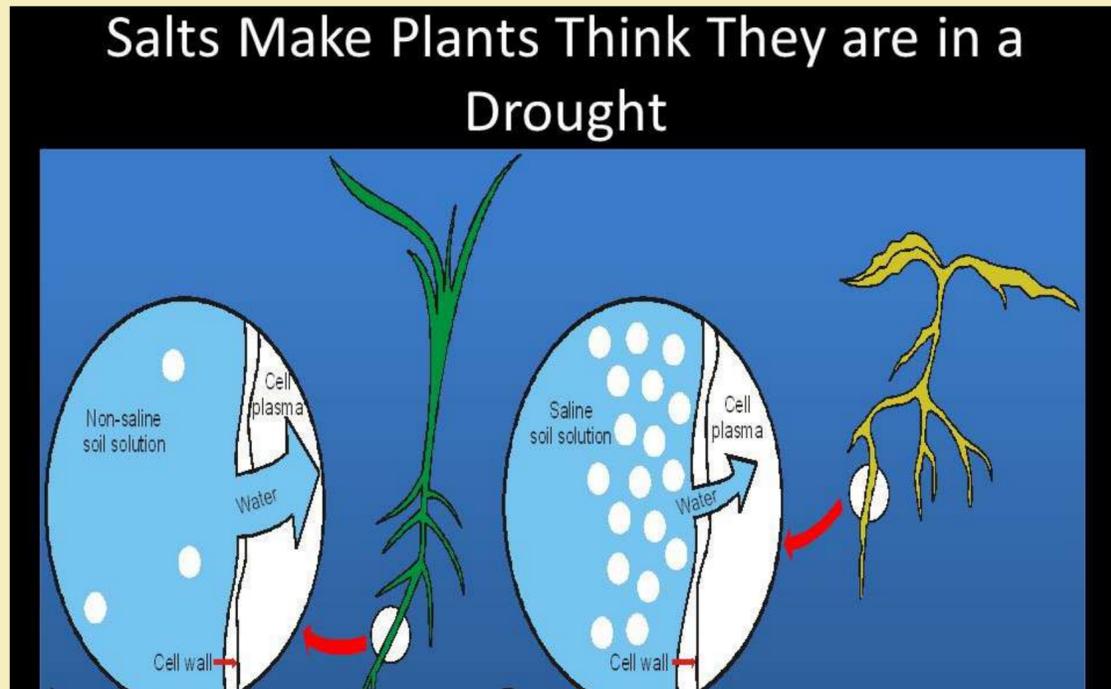
GROUND WHITENING AT EARLY STAGES AND IN LATER STAGES SALT CRYSTALS WAS FORMED.



SALINIZATION CAUSES WATER ABSORPTION, WATERLOGGING CONDITIONS, WHICH INDUCES THE RISK OF FLOODS AND SOIL EROSION.



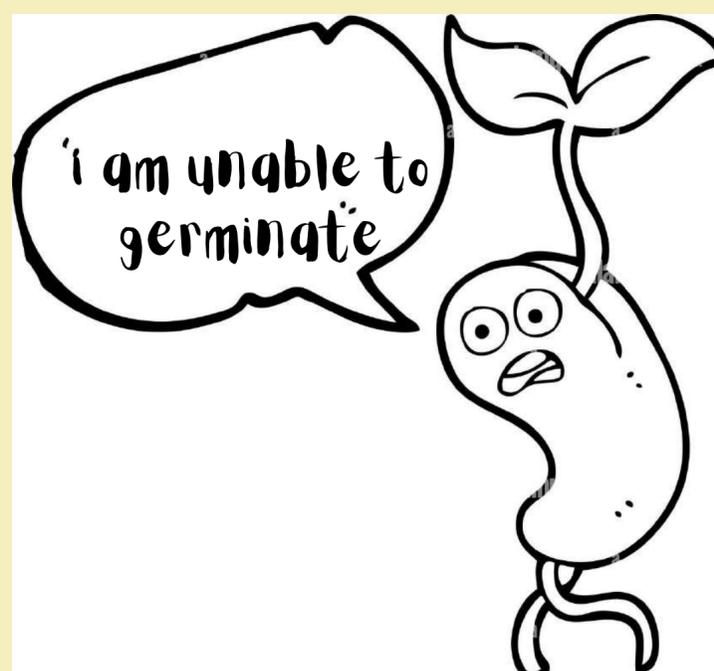
SOIL SALINITY IMPOSES ION TOXICITY, OSMOTIC STRESS, NUTRIENT DEFICIENCY (CA, FE, ZN,K), AND OXIDATIVE STRESS ON PLANTS AND LIMITS THE WATER UP TAKING CAPACITY.



IT ALSO AFFECTS PLANT GROWTH DUE TO AN INCREASE IN OSMOTIC PRESSURE



SALINITY ALSO AFFECTS ALMOST ALL ASPECTS OF PLANT DEVELOPMENT INCLUDING GERMINATION, VEGETATIVE GROWTH, AND REPRODUCTIVE DEVELOPMENT.



DUE TO ALL THESE EFFECTS IN THE SOIL, THE CROPS DIDN'T GROW WELL AND HE, THEREFORE, GOT LOSSES AND HIS FAMILY IS NOT ECONOMICALLY STABLE



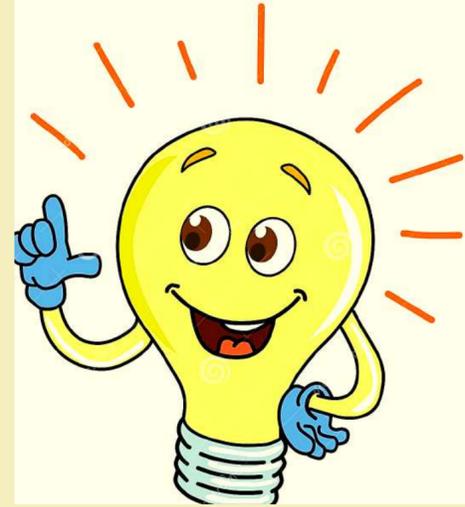
NOW !! AS YOU HEARD BOTH FARMER STORIES WE CAN TELL THAT FOLLOWING MANAGEMENT PRACTICES HAS GOOD DEEDS TO FARMERS AS WELL AS SOIL AND PLANT HEALTH....

THEREFORE

HALT SOIL SALINIZATION BOOST SOIL PRODUCTIVITY



GLOSSARY



1. **ECOSYSTEM:** AN ECOSYSTEM IS A GEOGRAPHIC AREA WHERE PLANTS ANIMALS AND OTHER ORGANISMS AS WELL WHETHER LANDSCAPES WORK TOGETHER TO FORM A BUBBLE OF LIFE.
2. **DEGRADATION:** THE PROCESS OF DAMAGING SOMETHING.
3. **PRECIPITATION:** IT IS ANY LIQUID OR FROZEN WATER THAT FORMS IN THE ATMOSPHERE AND FALLS BACK TO THE EARTH.
4. **DRAINAGE:** THE ARTIFICIAL REMOVAL OF WATER FROM LAND.
5. **WATER LOGGING:** THE CONDITION OF HIGH WATER INFLOW CAUSED BY RAIN, RAINFALL, ETC. IN THE FIELD.
6. **IRRIGATION:** THE ARTIFICIAL APPLYING CONTROLLED AMOUNTS OF WATER TO AGRICULTURAL LAND.
7. **BREEZES:** THE LIGHT AND THE COLD WIND.
8. **SCRAPPING:** BREAKDOWN OF THE HARD SURFACE LAYER OF THE SOIL.
9. **LEACHING:** IT IS THE LOSS OF WATER SOLUBLE PLANT NUTRIENTS FROM THE SOIL.
10. **MULCHING :** IT IS A PROCESS OF COVERING SOIL TO MAKE MORE FAVORABLE CONDITIONS FOR PLANT GROWTH AND CONDITIONS.
11. **FERTILIZERS:** THESE ARE CHEMICAL SUBSTANCES SUPPLIED TO THE CROPS TO INCREASE THEIR PRODUCTIVITY.
12. **SOIL EROSION:** THE PROCESS OF MOVEMENT AND TRANSPORT OF THE UPPER LAYER OF SOIL.
13. **OSMOTIC STRESS:** A SUDDEN CHANGE IN THE MOVEMENT OF WATER ACROSS IT'S CELL MEMBRANE.
14. **OSMOTIC PRESSURE:** THE PRESSURE WHICH IS REQUIRED TO BE APPLIED TO A SOLUTION TO PREVENT THE INWARD FLOW OF IT'S PURE SOLVENT.
15. **GERMINATION:** THE PROCESS BY WHICH SPROUTING OF SEEDLING TAKES PLACE FROM EMBRYO OF A SEED.

**Halt soil salinization,
boost soil productivity**

