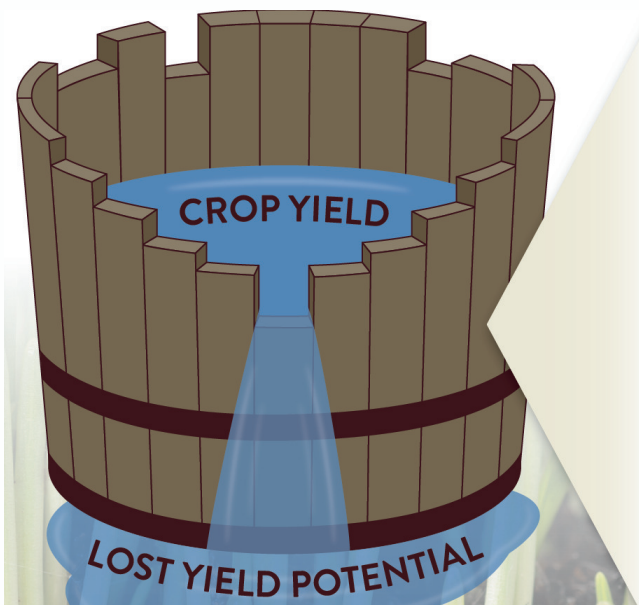




Law of the Minimum

FARMACIST
ASSISTING CROPS ON YOUR FARM

A PLANT'S POTENTIAL IS LIMITED even if ONE growth factor is deficient or missing.



BARREL STAVES = Individual growth factors that plants need

PLANTS NEED THE CORRECT:



Nutrition



Light



Water/
Humidity



Soil
Conditions



Temperature

Macro-nutrients



Micro-nutrients



MACRO-NUTRIENTS

- **NITROGEN:** A MAJOR COMPONENT OF CHLOROPHYLL THE PLANT USES TO PHOTOSYNTHESIZE ITS OWN FOOD. IT IS ALSO A MAJOR AMINO ACID COMPONENT FOR THE BUILDING OF PROTEINS.
- **PHOSPHORUS:** AN IMPORTANT PART OF ATP (ADENO TRIPHOSPHATE) WHICH IS THE ENERGY UNIT OF THE BIOLOGICAL PROCESSES WITHIN A PLANT'S CELLS.
- **POTASSIUM:** HELPS WITH THE MOVEMENT OF WATER/CARBOHYDRATES/OTHER NUTRIENTS THROUGHOUT THE PLANT TISSUE. ACTIVATES ENZYMES IN THE PLANT THAT CONTROL PROTEIN, STARCH, AND ATP PRODUCTION.
- **CALCIUM:** STRENGTHENS PLANT CELL WALL SUPPORT AND ACTS AS A SECONDARY MESSENGER WHEN A PLANT BECOMES PHYSICALLY OR BIOCHEMICALLY STRESSED.
- **MAGNESIUM:** POWERS PHOTOSYNTHESIS WITHIN THE CHLOROPHYLL MOLECULE.
- **SULFUR:** NEEDED TO HELP PLANTS PRODUCE CHLOROPHYLL AND METABOLIZE NITROGEN.

MICRO-NUTRIENTS

- **CHLORINE:** HELPS THE PLANT MAKE ADJUSTMENTS TO OSMOSIS AS WATER AVAILABILITY CHANGES. ALSO SUPPORTS THE TRANSPORTATION OF MACRONUTRIENTS (CALCIUM, MAGNESIUM, AND POTASSIUM) WITHIN THE PLANT.
- **BORON:** AIDS CALCIUM IN BUILDING CELL WALLS AND CREATING NEW PLANT CELLS. ALSO HELPS WITH REPRODUCTIVE GROWTH LIKE FRUIT/SEED DEVELOPMENT AND POLLINATION.
- **IRON:** HELPS CHLOROPHYLL PRODUCTION.
- **MANGANESE:** REGULATES PLANT GROWTH, METABOLISM, AND SUSTAINS THE OXYGEN-EVOLVING COMPLEX (OEC) WHICH HELPS THE PLANT BREAK DOWN AND USE WATER.
- **COPPER:** AIDS PHOTOSYNTHESIS, PLANT METABOLISM, AND RESPIRATION. ALSO ACTIVATES ENZYMES TO PRODUCE LIGNIN.
- **ZINC:** HELPS CHLOROPHYLL AND CARBOHYDRATE PRODUCTION, INCREASES COLD HARDINESS, FORMS AUXINS (WHICH HELP STEMS ELONGATE AND REGULATE GROWTH).
- **NICKEL:** ENZYME COMPONENT THAT HELPS METABOLIZE UREA NITROGEN INTO USABLE AMMONIA.
- **MOLYBDENUM:** IMPORTANT COMPONENT FOR ENZYMES THAT HELP SYNTHESIZE AMINO ACIDS AND PROCESS NITROGEN.



#**FARM**acist: Assisting Crops on Your **FARM**.

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