

Quiz I

A	Liming requirement	_____	A soil that has a pH value less than 7.0.
B	Lime material	_____	A soil that has a pH value greater than 7.0.
C	Lime purity	_____	The liming potential of a material as compared to CaCO ₃ .
D	Lime fineness	_____	A material capable of neutralizing soil acidity.
E	Calcitic lime	_____	Calcium sulfate (CaSO ₄ •2H ₂ O) used to supply calcium and sulfur and to improve sodic soils.
F	Dolomitic lime	_____	A naturally occurring liming material composed chiefly of carbonates of magnesium and calcium.
G	Calcium carbonate equivalent (CCE)	_____	Limestone consisting of CaCO ₃ based material with very low magnesium content.
H	Soil pH	_____	The particle size of limestone determined by the fineness of grind. The finer the grind, the more reactive the material is in neutralizing acidity.
I	Buffer pH	_____	The amount of liming material required to change the soil pH to a specific value.
J	Gypsum	_____	The measure of impurities in a given liming material, in order to estimate its neutralizing value.
K	Alkaline soil	_____	A soil test procedure whereby the pH of the soil is measured in buffer solution. Used in estimating the lime requirement of the soil.
L	Acid soil	_____	The degree of acidity or alkalinity of a soil, expressed on a scale from 0 to 14, with 7.0 indicating neutrality.

Quiz II

A	Aqua ammonia	_____	Fertilizer material with an analysis of 21-0-0. It also contains 24% sulfur.
B	Urea	_____	Inorganic form of plant available phosphorus.
C	Anhydrous ammonia (NH ₃)	_____	A liquid phosphorus fertilizer source. Typical analysis is 10-34-0.
D	Urea ammonium nitrate solution (UAN)	_____	20% anhydrous ammonia dissolved in water.
E	Ammonium nitrate solution	_____	Pressurized gas fertilizer made by compressing air and natural gas under high temperature and pressure with a catalyst. Analysis 82-0-0.
F	Ammonium sulfate	_____	A potassium aluminum sulfate or ammonium aluminum sulfate. Often a byproduct from water treatment plants.
G	Ammonium polyphosphate	_____	Fertilizer containing both nitrogen and phosphorus with an analysis of 18-46-0.
H	Monoammonium phosphate (MAP)	_____	A fertilizer composed of ammonium phosphates, resulting from the ammoniation of phosphoric acid. Typically with an analysis of 11-52-0.
I	Diammonium phosphate (DAP)	_____	Non-pressure solution of ammonium nitrate in water used for direct application or making multinutrient liquid fertilizer. Analysis is 20-0-0.
J	Triple superphosphate	_____	A product that has a guaranteed analysis between 40 and 50% available phosphoric acid. The most common analysis is 0-46-0.
K	Orthophosphate	_____	A nitrogen fertilizer that is a white crystalline solid, very soluble in water, which has an analysis of 46-0-0.
L	Muriate of potash	_____	Most common K fertilizer carrier which has an analysis of 0-0-60. Chemical composition is KCl.
M	Alum	_____	A non-pressure N fertilizer solution containing urea and ammonium nitrate in about equal proportions. Analysis ranges from 28% to 32%.

Quiz III

A	Mobile nutrient	_____	When the excess of one nutrient interferes with the uptake of another nutrient. Usually the nutrients have a similar uptake mechanism by the plant.
B	Immobile nutrient	_____	A large, water soluble organic molecule that binds with a free metal ion to form a water soluble compound. Increases the amount of metal ion dissolved in the water and the availability of that ion to plants.
C	Available nutrient	_____	The movement of particles from an area of higher concentration to an area of lower concentration.
D	Mass flow	_____	Minimal percentages of available nutrients as stated on a fertilizer label.
E	Diffusion	_____	A chemical inhibitor that slows the conversion of ammonium to nitrate in the soil, reducing the risk of nitrogen loss from the field.
F	Root interception	_____	The absorption by plants of a nutrient in excess of their need for growth. If taken up in early growth may be used in later growth.
G	Uptake antagonism	_____	The movement of solutes associated with net movement of water.
H	Luxury consumption	_____	A nutrient that moves readily in the soil or plant.
I	Guaranteed analysis	_____	A plant nutrient that moves slowly in the soil or plant.
J	Chelated molecule	_____	Method by which ions in the soil are intercepted by root growth.
K	Nitrification inhibitor	_____	A nutrient in a form that a plant can absorb.

Quiz IV

A	Soil texture	_____	A condition identified by the presence of oxygen.
B	Soil structure	_____	A condition identified by the absence of oxygen.
C	Soil reaction	_____	Plant available forms of P, S, Mo, Cl, and N (as nitrate) in soils.
D	Soil solution	_____	Plant available forms of Ca, Mg, K, Fe, Zn, Mn, Cu and N (as ammonium) in soils.
E	Cations	_____	A quantitative term that describes the general degree of acidity or alkalinity of a soil.
F	Anions	_____	The aqueous liquid phase of the soil and its solutes contained in soil pores.
G	Aerobic	_____	The combination or arrangement of primary soil particles into secondary soil
H	Anaerobic	_____	The relative proportions of sand, silt, and clay in the soil.

Quiz V

A	Nitrogen	_____	Essential plant nutrient involved in cell growth and cell wall development. Deficiency causes death of terminal growing points.
B	Potassium	_____	Essential plant nutrient is a component of the amino acids cysteine and methionine. Deficiency causes general yellowing of leaves.
C	Phosphorus	_____	An essential plant nutrient that is part of many compounds including chlorophyll, enzymes, amino acids, and nucleic acids.
D	Calcium	_____	Essential nutrient for plants and animals. Component of cell walls, nucleic acids, and energy transfer molecules.
E	Magnesium	_____	An essential plant nutrient involved in energy metabolism, starch synthesis,
F	Sulfur	_____	Essential plant nutrient that is the center of the chlorophyll molecule.

Quiz VI

A	Primary nutrients	_____	To apply nutrients, pesticides, or soil amendments uniformly over the surface of the soil.
B	Secondary nutrients	_____	To surface broadcast nutrients, pesticides, or soil amendments on the soil surface after crop emergence.
C	Macronutrient	_____	Applying fertilizer through an irrigation system.
D	Micronutrient	_____	The placement, by mechanical means, below the surface of soil.
E	Injection	_____	Macronutrients most commonly added in fertilizers (N, P, K).
F	Fertigation	_____	A nutrient that a plant needs in relatively large amounts. Essential macronutrients are nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), and sulphur (S).
G	Banded nutrients	_____	Application of a dilute solution of fertilizer to plant foliage, usually made to supplement soil-applied nutrients or for micronutrients.
H	Foliar fertilization	_____	Those macronutrients (calcium, magnesium, and sulfur) used less often as fertilizers than the primary elements.
I	Topdress	_____	To apply a fertilizer, pesticide, or soil amendment to one side of a growing plant, either by surface application or injection.
J	Sidedress	_____	A fertilizer applied in relatively small amounts with or near the seed at planting.
K	Surface broadcast	_____	To apply nutrients, pesticides, or soil amendments in narrow bands below the surface of the soil.
L	Subsurface band	_____	To apply nutrients, pesticides, or soil amendments in narrow bands over the surface of the soil.
M	Surface band	_____	Placing fertilizer nutrients in a band near the seed at planting, or surface or subsurface applications of solids or fluids in strips before or after planting.
N	Starter fertilizer	_____	Nutrients that plants need in only small or trace amounts. Boron (B), chlorine (Cl), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), nickel (Ni), and zinc (Zn) are considered micronutrients.

Quiz VII

A	Leaching	_____	The use of biological agents to remove substances hazardous to human health or the environment from contaminated soil or water.
B	Runoff	_____	The transformation of nitrates or nitrites to nitrogen or nitrogen oxide gas, occurring under anaerobic conditions.
C	Volatilization	_____	Conversion of an element from the inorganic to the organic form in microbial tissues resulting in the element not being available to plants.
D	Denitrification	_____	The movement of material in solution along with movement of water through the soil.
E	Immobilization	_____	The conversion of an element by soil organisms from an organic form to an inorganic form.
F	Bioremediation	_____	Portion of precipitation, snowmelt, or irrigation that moves by surface flow from an area.
G	Symbiotic N fixation	_____	Conversion of molecular nitrogen (N ₂) to ammonia and subsequently to organic nitrogen forms by organisms.
H	Mineralization	_____	The microbial process of converting ammonium to nitrite to nitrate.
I	Nitrification	_____	A decrease in soil analysis levels of a nutrient due to crop removal.
J	Nutrient drawdown	_____	The loss of a compound in gaseous form from a solid or liquid phase.

Quiz VIII

A	Organic nitrogen	_____	Plant material incorporated into the soil while green or at maturity, for soil improvement.
B	Green manure	_____	The relatively stable, highly decomposed portion of soil organic matter.
C	Mycorrhiza	_____	Symbiotic association between a fungus and plant roots, may assist with nutrient uptake.
D	Humus	_____	Bacteria that converts nitrite to nitrate in nitrification.
E	Rhizobia	_____	Bacteria that converts ammonium to nitrite in nitrification.
F	Nitrosomonas	_____	Bacteria capable of living symbiotically with higher plants by receiving food and carbon and fixing nitrogen gas into ammonium.
G	Nitrobacter	_____	Nitrogen that is bound with organic carbon and forms organic molecules.

Quiz IX

A	Nutrient management plan (NMP)	_____	Nutrients applied in order to build up a target soil test level and then maintained by annual addition of the quantity of nutrients expected to be removed in the harvested portion of the crop.
B	Plant available nitrogen (PAN)	_____	The rate of application of a nitrogen containing material so the desired amount of nitrogen is applied, regardless of the amounts of other nutrients being applied in the material.
C	Nutrient buildup	_____	The rate of application of a phosphorus containing material so that the desired amount of phosphorus is applied, based on balancing the agronomic rate or crop removal rate of the crop with the amount of phosphorus contained in a material. This amount is regardless of the amounts of other nutrients being applied in the material.
D	N-based nutrient application	_____	An environmental risk assessment tool for assessing the potential for phosphorus movement from agricultural lands. It is usually based on an estimation of potential soil erosion, the phosphorus soil test level, and phosphorus management practices such as rate of application, source of phosphorus, and timing and method of application.
E	P-based nutrient application	_____	An environmental risk assessment tool to determine the potential for nitrogen movement from agricultural lands by leaching, runoff or volatilization. The index is a function of the rate, form, timing and method of application.
F	P index	_____	An increase in soil analysis levels of a nutrient due to application of that nutrient at levels that exceed crop removal.
G	N index	_____	A written plan that specifies the utilization of fertilizer, animal manures, and other biosolids.
H	Buildup and maintenance	_____	A calculated quantity of nitrogen made available during the growing season after application of fertilizer. Includes a percentage of the organic nitrogen, a percentage of the ammonium N, and all the nitrate nitrogen in the fertilizer.

Quiz X

A	Soil test level	_____	The point between sufficiency and deficiency levels for a nutrient.
B	Sufficiency level	_____	The amount of nutrients needed to grow a specified yield of a crop plant per unit area.
C	Recommended rate	_____	The amount of nutrients that are removed from the field in the plant harvest. This would include harvested fruit, grain, forage, and crop residues that are physically removed from the field.
D	Toxicity level	_____	Total amount of nutrients required by the crop to produce both vegetation and grain, including nutrients used to produce unharvested roots, stems, crowns, plus harvested portion removed from the field.
E	Critical value	_____	Amount of nutrients recommended on a soil test report or plant tissue analysis for a specific crop that meets but does not exceed the crop nutrient requirements. Can also be used for soil test buildup.
F	Crop removal rate	_____	The nutrient status of the soil, as indicated by analysis of a soil sample.
G	Crop utilization rate	_____	A soil test level above which economic responses to applied fertilizer are unlikely to occur.
H	Crop nutrient requirement	_____	A quantity of a material in plants, soil, or water that can harm or impair the physiological function of plants or soil.

Quiz XI

A	Nitrite (NO ₂ ⁻)	_____	Mineral forms of nitrogen.
B	Nitrate (NO ₃ ⁻)	_____	A salt of phosphoric acid or any of its anions, usually orthophosphate or polyphosphate.
C	P ₂ O ₅	_____	An inorganic nitrogen form that is very soluble, easily leached from soils, and readily available to plants.
D	Potash (K ₂ O)	_____	A form of nitrogen that is the result of the first step in nitrification in soil by microbes.
E	Inorganic phosphorus	_____	Phosphorus that is bound with organic carbon and forms organic molecules.
F	Organic phosphorus	_____	Phosphorus pentoxide; designation on the fertilizer label that denotes the percentage of available phosphorus.
G	Inorganic nitrogen	_____	Term used to refer to potassium or potassium fertilizers.
H	Total nitrogen	_____	The sum of the organic and inorganic forms of nitrogen in a sample.