POTENTIAL ORGANIC FERTILIZERS AND BIO FERMENTS IN ORGANIC FARMING

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Nature farming

- The basic principles of Nature Farming are similar to biodynamic agriculture advocated by Rudolf Steiner in 1924
- Fundamental principle that has evolved with these alternative agricultural systems is that a farm forms a basic unit of self-sustainability
- Key component of sustainable organic farming is the use of locally produced and low cost biomass resources to rebuild and maintain soil productivity, improve soil health and quality of environment and produce
- Use of indigenous resources increased diversity and activity of beneficial micro organisms in the soil
- The microbes stimulate decomposition processes, releasing a constant supply of nutrients from soil organic matter,
- Enhance nutrient uptake by plants and increase plant resistance to pathogens and herbivorous insects.

Sources of Microorganisms to Soil in Natural Farming

- Two basic sources identified,first of these consists of indigenous microorganisms (IMOs) collected from the immediate environment surrounding the farm.
- Second consists of commercial preparations of effective microorganisms (EM) that contain a mixture of phototropic bacteria, lactic acid bacteria, fermenting yeasts, actinomycetes and other types of organisms.
- Inputs of commercial EM preparations are not usually preferred compared to locally produced IMO preparations.
- EM preparations potentially overwhelm local microbial communities and reduce their biodiversity ,
- Commercial EM may not be adapted to the new environment and will not be effective
- IMOs are collected in the environment surrounding the cultivated area and are adapted to the local plants and soil conditions and therefore more effective.
- An additional advantage of indigenous IMOs over commercial EM preparations is that they can be harvested from the local environment for a minimal cost.

Effective Mountain Microorganisms or Indigenous Microorganisms

- Technology was implemented for the first time in Japan
- Effective Mountain Organisms are extracted from their natural habitat (nearby natural forest)
- Is a collection of various beneficial microorganisms that are found in virgin soils or forest decomposing organic matter.
- Used in the preparation of organic fertilizers in order to speed up the process of breaking down organic matter
- Decomposing forest organic matter is a natural source of Mountain Microorganisms.
- Effective Mountain Microorganisms improves soil health and environment, crop productivity and quality of produce.
- Stimulates seed germination and root growth
- Protects the crops from being attacked by disease causing organisms.
- Are used in the preparation of Bokashi, Bio-ferments and Bio-crop repellents

Bokashi – solid organic manure

- Is a fermented mixture of solid organic materials acted upon by microorganisms to release nutrients that are important for crops.
- When applied to soil, the microorganisms help to restore soil life and minimize incidences of crop diseases thus producing healthy crops with vigorous growth and high yields.

Benifits

- Easy to prepare by any farmer using locally available material
- Has no ill effects compared to direct use of chemical fertilizers
- It is a rich source of crop nutrients and contributes to soil fertility improvement and restoration of soil microorganisms
- It increases the organic matter content in the soil thus improving its water retention capacity
- It is an economical alternative organic source on nutrients to a farmer compared to chemical fertilizers

Bioles - liquid organic manure

- This is a fermented liquid organic fertilizer produced from organic liquid material acted up on by effective Mountain Microorganisms, such as yeast, fungi and bacteria.
- Liquid organic fertilizer is a solution of nutrient elements, vitamins, organic acids and other substances for plant growth.
- Applied as foliar spray on crop and the nutrients are absorbed immediately

Benefits

- Better nourishment as all the nutrients and plant growth substances are in soluble form
- It is a microbial soup which permits re-establishment of microbial equilibrium in the ecosystem.
- They reduce incidences of plant pests and diseases making them more resistant
- They do not permit growth of plant pathogenic microorganisms and eliminate diseases

Mineral enriched bio ferments

- Initial process of preparing bio-ferments enriched with plant elements is exactly the same as that of preparing a bio-fermented liquid fertilizer.
- It requires the same initial inputs, however, one week after preparation, add exact quantity of desired nutrient element.
- Phosphorus, potassium, calcium, magnesium, borax, silicate etc. either alone or in combination can be added to prepare mineral enriched bio-ferments.
- Though the mineral enriched fermented fertilizers are chemical products they are allowed in organic agriculture for healthy and vigorous crop growth in situations of deficiency

Bio Repellents and Bio Insecticides

- Organic product used to control crop pests and insects such as caterpillars, piercing and plant sucking insects, coffee berry borer, scale insects and a number of other pests that attack crops,also used against fungal diseases

References

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Thank You