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AIMING TO REVOLUTIONIZE WORLD
AGRICULTURE**

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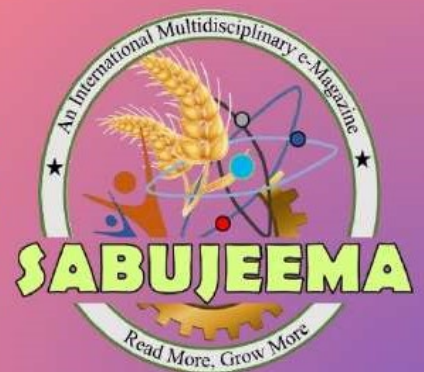
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NANO UREA: INDIA'S '21ST CENTURY' PRODUCT AIMING TO REVOLUTIONIZE WORLD AGRICULTURE

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Agriculture is and always be the weapon to bring change and Revolutionize the world . The power that Agriculture Sector holds in changing the world cannot be questioned. In the process of development of this sector Indian Farmers Fertilizer Cooperative (IFFCO) claimed on June 6, 2021 that it has started the commercial production of the 'Nano Urea Liquid', First-of-its-kind product.

In a break through, IFFCO launched Nano Urea Liquid, a nutrient to provide nitrogen to plants as an alternative to the Conventional Urea. World's 1st Nano Urea Liquid was unveiled during its 50th Annual General body meeting of IFFCO, which was held in online – offline mode.

WHAT IS NANO UREA?

Urea that is produced from Nano – technology to improve the nitrogen efficiency of the plant.

WHY WE NEED NANO UREA OVER CONVENTIONAL UREA?

1. IFFCO Nano Urea Liquid is developed to replace Conventional Urea and it can curtail the requirement of the same by at least 50%. (One 500ml of bottle is equal to 45kg kg of Urea bag.)
2. It contains 40,000 ppm of Nitrogen in a 500ml bottle which is equivalent to the impact of nitrogen nutrient provided by one bag of Conventional Urea.
3. IFFCO has priced Nano Urea at Rs 240 per 500ml bottle for farmers ,which is 10% Cheaper than the cost of a bag of Conventional Urea.
4. Conventional Urea is effective 30-40% in delivering Nitrogen to plants, while the effectiveness of the Nano Urea Liquid is over 80%.

They also tested the effectiveness in over 11,000 farmers' fields, trials on 20 ICAR institutes and State Universities. It is more effective than the conventional granular Urea.

VARIOUS BENEFITS OF NANO UREA LIQUID FERTILIZER

The Nano Urea Liquid has been found effective and efficient for plant Nutrition which increases the production with improved quality.

The main impact which it creates is on climate change and sustainable development as it has a very positive results in improving the quality of underground water and significant reduction in the global warming. Stating that the use of excess Urea can cause environmental pollution. Decreases the soil health and makes plants



more susceptible to disease and insect infestation, delayed maturity of the crop and production loss. Farmers using Nano Urea Liquid will boost the balanced nutrition Program by reducing the excess use of Urea applied in the soil and will make the crops stronger, healthier and protect them from lodging effect. Some Urea also get drained out with water into some lake, river etc. This increases Nitrogen percentage which leads to Algal bloom which in turn decreases the BOD level in water leading to death of aquatic animals. Nano Urea can really solved this problem to a great extent. It can really boost the economy of the country as The Government spends thousands of crores on urea subsidy every year. If farmer's dependency on conventional Urea will decrease then subsidy of government will be saved and for the fact 82% of Nitrogen Fertilizer used in India is Urea. India as a country depends on other countries for importing the fertilizer. Hence by setting up factories of Nano Urea will decrease our dependency on other countries. Nano urea can really curb this import charges and can encourage the export system of the country.

PERSPECTIVE OF NANO FERTILIZERS

Loss of Nutrients from Agricultural fields in the form of leaching and gaseous emissions has been the leading cause of environmental pollution and climate change. Nano technology which utilizes Nano materials of less than 100nm size, may offer an unprecedented opportunity to develop concentrated sources of Plant Nutrients Having higher absorption rate, Utilization Efficiency and minimum losses. Nano fertilizers feed the crop plants gradually in a controlled manner in contraction to rapid and spontaneous release of Nutrients from

Chemical Fertilizers. Nano fertilizers are more efficacious in terms of Nutrients absorption and Utilization owing to considerably lesser losses in form of leaching and volatilization. Nano fertilizers record significantly higher uptake owing to free passage from Nano sized pores and by molecular transporters as well as root exudates. Nano Particles also utilize various ion channels which lead to higher nutrient uptake by Crop Plants. Within the plant, Nanoparticles may pass through Plasmodesmata that results in effective delivery to sink sites.

CONCLUSION

The world Population is estimated to exceed 9.7 billion by 2050 (FAO 2018) accordingly it has been anticipated that current crop production needs to be increased by up to 70% to satisfy Future Food demand. This great challenge will require combined efforts to preserve nature resources to support intensive agriculture while limiting detrimental impact on the environment. Having said that use of Nano Urea will increase the production by 8% itself. Hence Invention of Nano Urea at the Biotechnology Research center at Carol is really a Milestone in agriculture sector.

REFERENCES

Internet and Newspapers