

Pusa Hydrogel: A boon to Indian Agriculture

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Abstract:

Pusa-hydrogel is a great invention for the future perspective and a great innovation it can solve the most important and arising problem of water usage and it should be used by the farmers for reducing the stress on water table as it is decreasing day by day. It is both feasible and friendly to the farmers. Government should also promote such a kind gesture of the scientist of IARI, New Delhi and help the farmers to easily access the greatest invention of the decade. This invention is useful for the survival of crop in worst conditions also i.e., drought and high temperature and also suitable at every Indian soil conditions.

Keywords: Pusa-hydrogel, Water, Farmers.

Introduction:

Pusa-Hydrogel is a semi-synthetic, cross linked, derivatized cellulose-graft-anionic polyacrylate superabsorbent polymer. In India there is about 160 million ha of land under cultivation in which there is about 39 million irrigated underground water, 22 million irrigated through canals, rivers and about two third of land is dependent on monsoon and the available irrigation management system in India is poor as the majorly practiced form of irrigation is flood irrigation resulting in depletion of ground water table. So, to keep these points in mind Scientists from Indian Agricultural Research Institute, New Delhi invented the pusa-hydrogel to keep in mind the alarming rate of water scarcity which is to be faced by the world by 2025. It is assumed that by 2025 two third of world population will face water scarcity, as the condition of water availability is seemed to be about more than 100 million of people leave under poor water quality and more than 54% areas are about high to extremely high-water stress condition. Scientists found out that pusa-hydrogel is applicable to all crops primarily wheat, paddy, sugarcane, groundnut, potato, strawberry, tomato, onion, carrot,

mustard, cauliflower, cotton, chrysanthemum, turmeric etc. The average rate of usage is 2.5-3.0kg/ha of pusa-hydrogel.

Benefits:**1. Water use Efficiency:**

After its application when Irrigation is done it absorbs about 350 times its actual weight in complete water presence and releases it later on therefore interval time of irrigation is being increased and time of irrigation scheduling is increased.

2. Temperature resistant:

It can be well suited up-to maximum of 50degree C of temperature in arid conditions therefore if there is low water availability then also is best suited.

3. Soil Requirements:

Pusa-hydrogel is well suited with all type of soils available in Indian conditions either it is basic or acidic.

4. Economic to farmer:

The average cost of the product available in market is as low as Rs.1000-1400/kg.

5. Environment friendly:

- Helps in root penetration
- Helps in improving soil characteristics
- Helps in increasing density of soil

Application Method:

It requires a basal dose of 2.5-3.0kg/ha. It is applied to the field at the time of sowing or before irrigation.

Yield Attributes:

In recent studies it is found out that there was an increase in about 18-22% of yield on various crops done under the field conditions of IARI, New Delhi for at the period of 2 years and also found out that the irrigation requirements were limited (2 scheduling)-3 irrigation on each of the crop and some crops were also under rain fed conditions.

Future Aspects:



With the increasing demand of water and keeping in mind its scarcity in coming decades it is seen as the boon to the agriculture and for the betterment of society. It is the need of the hour that we should work in a way to efficiently use the available resources specially water.

Conclusion:

Pusa-hydrogel is the future of agriculture specially in Indian conditions where the country is going to face water related problems so to efficiently use the water the farmers and the government need to enrol the use of pusa hydrogel in the field operations to enhance water use efficiency and also the soil properties. It is also well needed to maintain the natural ecosystem and improving the ground water table and save the resources for our future generations.

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