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Encapsulated Paddy Seed Technology for Improved and Higher Production

Sneha. S, A. Sheebasilvia, G. Rasakumari, S. Renita, K. Shamili and B. Guna
Imayam Institute of Agriculture and Technology, Tamilnadu Agricultural University, Lawley Road, Coimbatore-641003.

In recent times, several innovations have been attempted for reaping improvements in the cultivation of encapsulated paddy seeds. More precisely, the recent innovations are targeted in the development of methods for encapsulating one or more seeds. The encapsulated paddy seed generally consists of one or more seeds that are encapsulated by a compressible medium of encapsulation. Out of several epitomes (or embodiments), the encapsulated paddy seeds shall have a surface coating and/or an intermediate coating. In some epitomes, an additive may also be added in the encapsulated paddy seeds. For differentiating the types of epitomes, the changes in characteristic for several combinations are made to distinguish a feature in an encapsulated paddy seed. This innovation in rice cultivation also provides various epitomes for a multiple numbers of encapsulated paddy seeds that possess uniformity in seeds pertaining to shapes and sizes. The method for increasing the number of encapsulated paddy seeds focuses on having uniform seed sizes and shapes.

Evolution of Encapsulated Paddy Seeds

An optimum climate is not available across several parts of the world which has made scientists in agriculture to evolve new and improvised methods to make the cultivation process an easier one. The difficulties in the cultivation of paddy has made the cultivators to opt for certain methods shatter the health of the people consuming it. More than the problems in unavailability of optimal climate, there are several other debacles to successfully cultivate paddy. These include absence of fertile soils due to inaccessibility of proper fertilizing agents, huge number of insects and weeds affecting cultivation, and 'birds and animals' that rummage the seeds. Moreover, in cases where these are not problem for the cultivators, there are other problems like lack of knowledge for the cultivator in planting, cultivation and harvesting resulting in achievement of good quality rice. Educating the stakeholders with proper

farming methods have been a better solution for several years. However, the lesser educational qualification of the people involved has provided a setback in educating them. Also, the unorganised market conditions have an impact of cultivating good quality rice in more numbers. Also, there are limitations in distributions and transportation. In such a scenario, addressing the issues in achievement of rice pertaining to variability in size and shape has been a difficult task. The epitomes or embodiments of encapsulated paddy seeds would provide the cultivators having lesser knowledge to achieve the desired shape and size with easier pest, weed and disease management solutions.

Methodology

The preparation of the encapsulated paddy seeds involves the following steps in the cultivation of rice crops.

1. A good quality gelatine capsule is selected.
2. Two paddy seeds of uniform size is inserted into the capsule.
3. The capsule is filled with neem seed powder, organic manures, organic pesticides and micro nutrients.
4. The field is prepared for direct sowing after which the encapsulated paddy seeds are sown at desired spacing and depth.
5. The sprout occurs when the field gets irrigated.

Benefits

The following benefits could be achieved through the encapsulated paddy seed epitomes.

1. The cost of cultivation gets reduced in the nursery preparation.
2. It requires only two to three kilogram of seeds per acre.
3. The number of tillers could be increased to 60-80 tillers/hill
4. It is highly suitable for monsoon failure areas because the capsules are sown one week before the expected occurrence of rain.
5. Higher germination rate close to 100 percentage is possible.
6. The fertilizer requirement is reduced as only small amount of fertilizer is added inside the capsule.
7. The pests attack in the initial stage even with a little amount of pesticide initially added in the capsule.
8. The seedlings the arise from the encapsulated paddy seed are highly vigour.
9. The labour involved in this method less compared to the conventional method.

Economics of production for encapsulated paddy seed technology

The details of various costs involved for the cultivation of rice through encapsulated paddy seed technology for one acre are given below.

Land preparation cost for the main field	=	3,000 INR
Seed cost for 2400g	=	250 INR
Capsule cost for 60,000 capsules	=	12,000 INR
Cost for the mixing of Micronutrient, Neem cake powder and other nutrients along with capsule filling cost	=	2,500 INR
Sowing Cost	=	2,000 INR
Irrigation Cost	=	1,000 INR
Fertilizer and manure cost	=	2,000 INR
Plant Protection Charges	=	500 INR
Cost involved for Harvesting	=	1,200 INR
Transportation Cost	=	400 INR

The total cost of cultivation calculates to 24,850 INR for the above-mentioned estimated costs.

- The Grain yield of 35 bags (77kg per bag) calculates to 35,000 INR.
- The Straw yield calculates to 2,000 INR.
- Gross income calculated by summing Grain yield and Straw yield is 37,000 INR.
- The Net income calculated by deducting the cost of cultivation from Gross income is 12,150 INR.
- The B:C ratio is the ratio of Gross Income to Cost of Cultivation and it calculates to 1.48 for the estimated costs.

Conclusion

All the quality standards can be met through the procedure of encapsulated paddy seed method for the desired shapes and sizes. The encapsulated paddy seed method is less costly, less labour intensive in addition to being scientific and systematic. This method is suitable for all climates and soil. The time of rice production has been reduced considerably by opting the encapsulated paddy seed method. The encapsulated paddy seed does not require transplanting machines or skilled cultivating workforce. The sowing of encapsulated paddy seeds provide higher yield in spite of lower labour, scarce water and other resources. The method also suits for both upland and lowland.