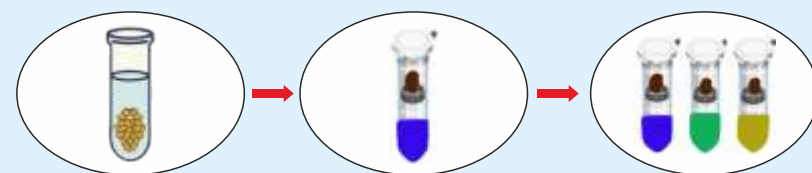


This new technology will provide the following benefits to Indian seed companies, progressive farmers and other stakeholders

- The colorimetric assessment provides quick results within 4-8 hours, allowing for timely decision-making on seed viability.
- This method is easy to perform, requires minimal equipment, making it accessible for farmers in field conditions, and is farmer-friendly.
- It is non-destructive and capable of assessing the viability of individual seeds.

Three easy steps



Soak

Incubate

Observe colour
change

F/2025/SST-9



Beneficiary

Progressive farmers, FPOs,
Seed companies, Research institutes, etc.

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SpeedySeed Viability Kit™



Patent File No.: 202511002330

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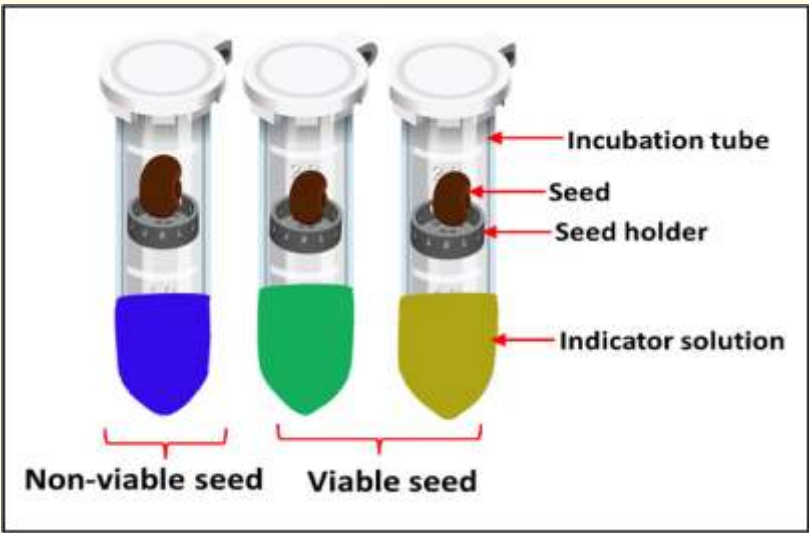
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Seed viability is an important seed quality characteristic reflecting potential seed field establishment and farm output. Viability is usually tested with a germination test, which takes several weeks.

Principle:

- The rate of CO₂ release is higher in viable and vigorous seeds.
- The CO₂ released is absorbed in an aqueous solution, causing a change in the solution's color.
- An indicator solution, which changes colour based on the amount of CO₂ release by the respiring seeds is used as an indirect method to find the seed viability.
- Soaked seeds are incubated with the indicator solution in airtight, transparent tubes for 2–4 hours. The seeds are then classified as viable or non-viable based on the observed colour change.
- A rapid colorimetric test kit capable of distinguishing between viable and non-viable seeds.
- The kit includes an indicator concentrates sufficient for testing 300

seed, a dropper bottle, seed holders, and 100 transparent airtight incubation tube.

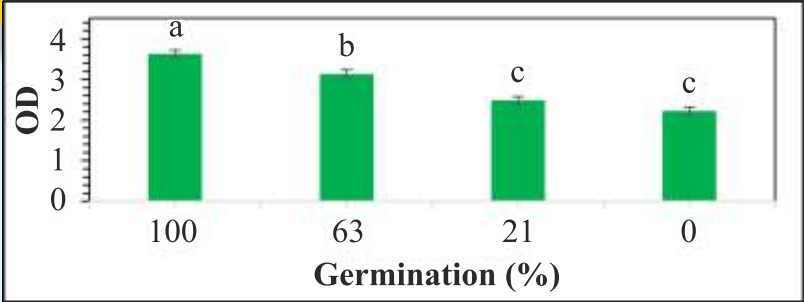


Testing process:

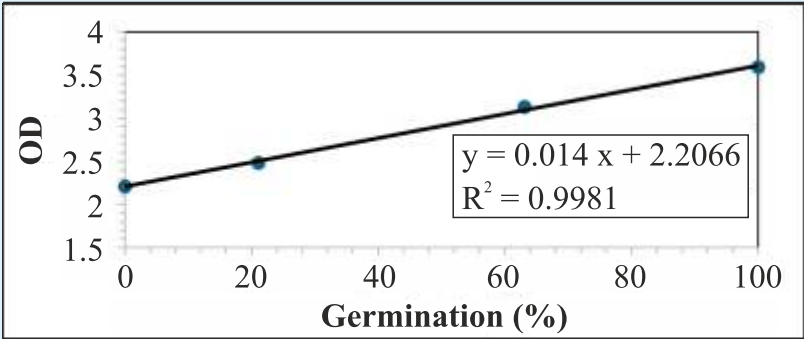
- Securing pre-soaked seeds (2–4 h) in a seed holder placed inside the incubation tube containing 250 µL indicator for 2-4 h (incubation) during which the change in colour of the indicator solution is observed.
- The solution if turn green or yellow indicate viable seeds, while those that remain blue (initial indicator colour), signify non-viable seeds.
- This kit will be of use for the stakeholders when it is needed to test the seed viability quickly.

Comparison of germination percentage between standard germination test and estimation using indicator

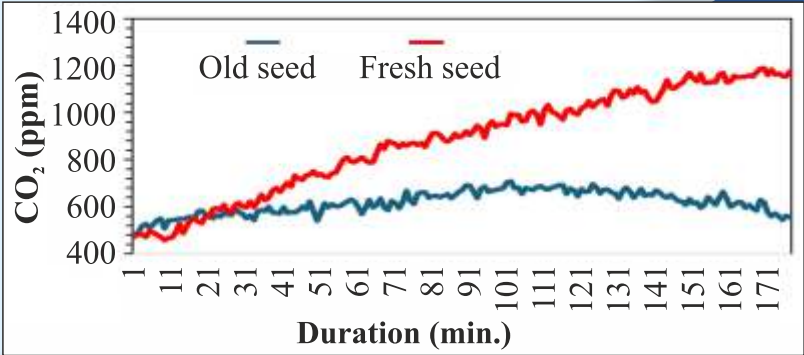
Crop	Standard germination test	Estimated by SpeedySeed Viability Kit™
Maize (lot 1)	95%	100%
Maize (lot 2)	63%	60%
Maize (lot 3)	21%	18%
Maize (lot 4)	0%	10%



Optical density (OD) of the indicator solution for maize seed lots with different germination percentages



Linear Regression between germination and optical density in maize seed lot with varying germination percentages



CO₂ evolution by old and fresh seeds in maize