



Sprout Damage Analyzer User Manual



Introduction

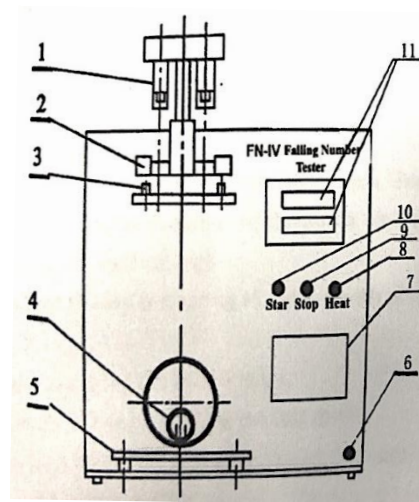
Sprout damage also referred to as the Falling Number is a method used to determine the alpha-amylase content in wheat. Alpha-amylase is an enzyme that is used in the wheat kernel to turn starch into sugars for use as an energy source. Quality wheat has a low enzyme content.

Sprout damage analysis is a relatively accurate indicator of germination and, in turn, the end-use quality of wheat. A sprout damage value of around 300 seconds indicates wheat is sound and satisfactory for most milling and bread baking processes. In practical terms, if germination is too high, bread dough will be too sticky and hard to handle and baked loaves will have open holes, and be crumbly, deformed and hard to package. Production problems will occur with pasta such as uneven extrusion, stretching, and cracking. Upon cooking, pasta will become soft and mushy.

Sprout damage content is regularly used in sales contracts in replacement of visual assessment of grain germination.

Features:

1. Hanger
2. Level arm
3. Cap knobs
4. Reservoir power outlet
5. Water bath knobs
6. Power key
7. Printer
8. Heat indicator light
9. Stop indicator light
10. Start indicator light
11. Display screen



Specifications:

Specifications	Value
Mix stick weight	25±0.05g
Water bath barrel preheated pipe	600W
Inside diameter	21±0.02mm
Outer diameter	23.8±0.25mm
Consistency	Within 10% range
Size	420x340x350 mm
Weight	25kg
Power supply	AC 220V±10% 50 Hz

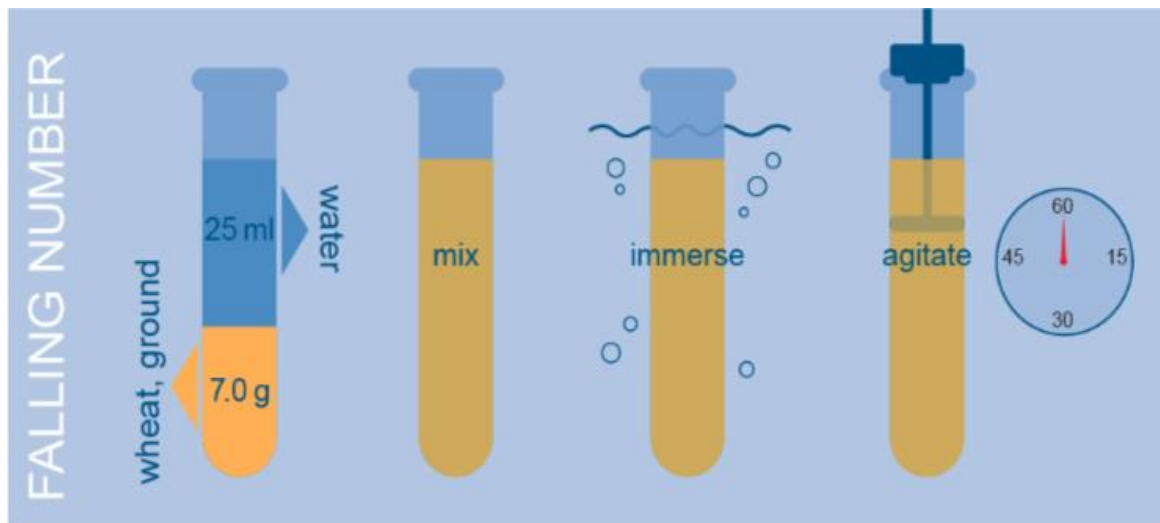
Experiment

Machine setup:

1. Plug the power cord into the voltage transformer included with the machine.
2. Unplug the power from the reservoir and remove it from the machine.
3. Remove the lid from the reservoir
4. Fill the reservoir with water (up to the handle nuts in the inside of the reservoir) and place the lid back on.
5. Plug in the step-up power and connect it to the machine.
6. Install the cooling pipes (intake and outtake) and overflow pipe. The intake valve is the valve furthest from you when facing the machine, and the outtake valve is the valve closest to you. Make sure the intake valve is connected to water at one end. Similarly, the outtake valve and overflow valve should have an area for drainage of water.
7. Before starting the machine, pour more water into the reservoir until the water starts to drain out of the overflow tube. You can put more water in through the test tube holes in the cap of the reservoir.
8. Dry hands and surrounding area, then plug the machine into the power and turn the machine on.
9. Wait until the water starts boiling. Caution: Do not touch the outside of the reservoir as it may be hot.
10. Open the cooling valve slowly and let the water go through the cooling header.

After setting up the machine, you can prepare the samples to be tested.

Sample Preparation:



1. Use the milling machine to make some wheat mill.
2. Use a scale to measure 7.00g of mill and then pour into the test tube. Repeat this process for another sample.
3. Pour 25 ml of distilled water inside each test tube. Mix the sample. Shake the test tubes vigorously about 20 times. Please make sure that there is no dry sample left inside the test tube. To ensure accurate testing, quickly insert the tubes in the reservoir and press start. If this process takes longer than 1 minutes, testing results may not be accurate.
4. Put the two tubes inside the reservoir and push the start button. The machine agitates the samples for about 60 seconds. At 60 seconds the plungers are drawn up and then released to fall freely. Falling number value is determined based on the speed of the fall of the plunger. The analyzer automatically prints the result at the end of the test.
5. The falling number of 200- 300 seconds are the most suitable for the bread-baking processes.



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