

# Keeping Heat Damaged Grain for Seed

With the recent fires that have affected both the Esperance/Grass Patch regions of WA and the Pinery/Mallala Regions of SA, a lot of grain has been affected by heat either in field bins or silo bags. The question will be raised if this grain is viable to keep as seed. The following information may help you to decide if you should keep the grain for seed or if you should source new seed that is undamaged.

**The amount of damage the fire will have caused to the grain will depend on two factors:**

1. The maximum temperature the grain reach during the fire.
2. How long the high temperature impacted the grain.

The maximum temperature that grain (being kept for seed) can reach before damage may occur is outlined in the table below:

Crop	Temperature	Crop	Temperature	Crop	Temperature	Crop	Temperature
Wheat	60°C	Canola	45°C	Oats	50°C	Lentils	45°C
Barley	45°C	Peas	45°C	Cereal Rye	45°C	Other Grains	43°C

(source: Department Agriculture Canada)

If the grain reached temperatures during the fire in the grain is above those in the table then some damage may have occurred that could affect its viability as seed. The greater duration grain is held above the maximum allowable temperature the lower the germination may be. Lower temperatures will require more time to damage the grain compared to higher temperatures.

Experimental work has shown that heat damage grain will have lower germination rates compared to undamaged grain.

The minimum germination that grain kept for seed should have is outlined in the table below. If your seed is below this you should consider getting new seed.

Seed Type	Minimum Germination	Seed Type	Minimum Germination
Durum wheat	85%	Oats	90%
Wheat	90%	Rye	85%
Barley	90%	Canola & Pulses	85%

(Source: State Departments of Agriculture Australia and Hannaford)

## Grain damaged by heat is affected in the following ways:

1. Lower germination rate (as low as 30%).
2. Slower germination.
3. Delayed emergence of the primary leaf.
4. Stunted growth.
5. Possible termination of the germination process. (will not germinate).
6. Seed death may occur.

Before using any grain that may have been damaged by fire, you should conduct a germination test on the seed to determine its suitability for the 2016 season. As always, **Hannaford offers free germination tests for farmer customers.** Please contact your local Hannaford Franchisee to undertake a germination test on your grain. These tests take approximately 5 weeks to be completed and for he results to be returned to the farmer. However, any samples of grain with obvious burnt grains in it should not be kept for seed if at all possible.



Healthy grain on the left.  
Badly heat burnt grain on the right.  
(Photo source: Agbiz Gain)