



DRYING SUNFLOWER

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Early Harvesting Reduces Losses

Physiological maturity of sunflowers occurs when seed moisture contents are about 32 to 34% (wet basis). At this time quantity of dry matter and oil content of the seeds is at its maximum.

Therefore, harvesting the seed as soon as possible after this time should result in the highest quantity of seed being produced from a crop. Any delays after this time allows the crop to be exposed to bird damage and shattering.

If the benefits of early harvesting are to be realised then it becomes mandatory to artificially dry the seed prior to storage or sale.

The storage moisture contents called for by the industry are usually about 9% (wet basis).

Sunflower seed is easily dried when compared with cereal crops such as wheat and most types of dryers are suitable.

Sunflower Seed Dries Easily

The seed is large and light and allows a relatively free flow of air to pass through it. The effectiveness of any dryer is closely related to this factor.

Most dryers are designed for use with crops having a bulk density (bushel weight) higher than sunflowers. This means the amount of water removed per cubic metre (bushel) of sunflowers is less than that removed from maize, assuming the percentage moisture reduction is the same.

Sunflowers will generally dry much faster than other crops in any given dryer and care must be exercised in order that overdrying is prevented. In batch dryers, heat systems should be shut off when the average batch moisture content is about 1% higher than the final figure required. This figure will vary with cooling time and type of machine.

Air Temperatures

Most modern batch dryers have airflow rates (volume/min) of at least 20 times the volume of the grain or seed contained in the bin. With these machines the following drying air temperatures can be used as a guide.

Under no circumstances should, sunflowers to be used for seed, be dried at air temperatures exceeding 43°C (110°F).

Product Market	Drying Air Temperatures	
	Batch Drying Bin (600 mm bed depths)	Recirculating and Continuous Flow
Commercial Seed	60°C (140°F)	71°C (160°F)
	43°C (110°F)	43°C (110°F)

Fire Danger

High drying air temperatures up to 93°C (200°F) do not appear to damage the oil quality of sunflowers. High temperatures and high air flow leads to improved speeds and efficiencies in any dryer. However, with direct fired dryers there is an ever-present fire hazard and sunflowers are extremely dangerous in this regard. This hazard is increased with higher temperatures and therefore considering the ease with which sunflowers dry it is best to use the lowest air temperature consistent with the required dryer throughput.

The most common cause of fires in direct fired dryers is fine trash from the seed being dried or loose material from the area surrounding the dryer being picked up by the dryer fan and ignited by the heater.

A direct fired dryer is one in which the oil or gas burner flames are drawn directly into the air stream and into the grain or seed being dried. Indirect fired dryers incorporate a heat exchanger which prevents this direct contact and eliminates the fire hazard created by trash pick-up.

The ignited trash is blown into the dryer starting the fire. Once a fire has started a dryer becomes a very efficient furnace. The dryer fan supplies large quantities of air promoting rapid burning. This effect is especially noticeable with high oil content sunflowers and special care is necessary.

Try to prevent fires by good house-keeping around the dryer air intake, keep the plenum chamber and heater chamber clean, do not overdry and never leave the dryer unattended.

Points to Remember

1. Being able to artificially dry sunflower seeds, as with any other crop, gives the grower the benefits of early harvest, low field losses and a powerful management tool in the timing of a harvest.
2. Sunflowers dry easily. Take care not to overdry.
3. Sunflowers catch fire easily. Use lowest possible air temperature and keep area free of trash.