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GRAINS RESEARCH
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CORPORATION

SAFFLOWER

SECTION 12

HARVEST

HEADER SETTINGS | WINDROWING | WET HARVEST ISSUES AND MANAGEMENT | DRY HARVEST ISSUES AND MANAGEMENT | FIRE PREVENTION

Harvest

FAQ

Safflower sown in winter is normally ready for harvest 4–6 weeks after wheat and about 4 weeks after flowering has finished. Harvest usually begins in late December in northern NSW and continues into March in south-eastern South Australia. Harvest can commence when most of the bracts surrounding heads are dry and yellow or brown and the stem is dry.

Terminal heads are the first to mature, and this can be up 2 weeks before heads on secondary branches. It is therefore important to sample whole plants to get a reliable idea of seed moisture content and maturity. Occasional late heads that are still green will contain immature seeds, but they can be ignored.

When mature, seeds should be white and can be easily squeezed out of heads by using gloved hands. Seed samples can also be extracted by cutting the heads from plants and placing them in a tray and pressing gently down on them with a soft plastic implement such as a dustpan.

Very hot and dry conditions during harvest will result in very brittle plants, which shatter easily into small pieces, making it difficult to maintain a clean seed sample. Safflower resists shattering from wind while crops are standing, but plants are easily shattered at the cutter bar of harvesting machinery if very dry. These issues can be overcome by harvesting very dry crops during cooler conditions, such as at night.

Seed moisture should be <8% and most processors will not accept seed above this level because it is prone to overheating and mould formation.

Safflower should be harvested as soon as possible to reduce the risk of yield and quality losses from rain, which can stain seed, reducing its value. Rain can also cause seed to germinate in the erect, cup-like flower heads, which can hold water for some time. The risk is greater in northern regions.

Safflower does not lodge readily, but seed can be lost in very strong wind. Furthermore, small birds such as sparrows may feed on seed while it is still in the head awaiting harvest, and cockatoos can chew plants off at the base, and then remove the seed from the flower heads when the plant is on the ground (Figure 1).

Figure 1: *Safflower damaged by cockatoos.*

Photo: Nick Wachsmann

Safflower will thresh at >8% seed moisture, but harvested seed must be dried quickly in a grain drier to prevent the development of a musty odour. This may also help to preserve the preferred whiteness of the seed coat for birdseed markets. [1]

12.1 Header settings

Safflower can be harvested with the same machinery used for cereals. Groundspeed is generally 25% slower than for cereals. This is mainly to reduce grain losses, but also to reduce the chance of blockages, which can be time consuming and uncomfortable to rectify because of the crop's spines. Header settings will vary with conditions, crop yield and the type of machinery used.

Reels should be set to push the crop gently over the cutter bar without dislodging seed from the capitula. Drum speeds are generally slower (~500 rpm) and concave openings usually wider (~16 mm at front, ~13 mm at back) than used for cereals. This is to prevent the cracking of seed, which will deteriorate oil quality and reduce the value of the crop. Special care should be taken when harvesting planting seed, using as low a drum speed as possible. [2]

12.2 Windrowing

Wind settings are typically about two-thirds of those required for wheat. Large populations of green weeds can make harvesting difficult, and no desiccants are currently registered or recommended for use in safflower. Windrowing or swathing is an alternative, but some losses from shattering should be expected, and on current data, windrowing is not recommended. Typical grain losses during harvesting are ~3–4%, made up of 2–3% at the back of the header and ~1% at the cutter bar. [3]

12.3 Wet harvest issues and management

It is important to harvest safflower as soon as maturity is reached, because delayed harvest increases the risk of damage from storm weather during summer, particularly in northern areas.

The erect heads of safflower catch rainwater, which will cause the seed to discolour or sprout in the head. Strong winds may cause shatter loss. Seed may also be stained a dark brown colour, which will make it unsuitable for the birdseed market.

12.4 Dry harvest issues and management

In dry weather conditions, safflower may be left standing for up to 1 month before harvesting because it will withstand lodging, insect and bird attack when it is mature.

12.5 Fire prevention

The bristles contained in safflower heads are light, fluffy and highly flammable. Harvesting machinery should therefore be periodically cleaned when harvesting safflower to reduce the risk of fire, especially around the engine, radiator, air intakes and exhaust.

Many growers choose to drag a chain from the travelling harvester to dissipate static buildup and mitigate the possibility of header fires. [4]

MORE INFORMATION

Farm FireWise. Checklist and action plan

NSW Rural Fire Service.Fire danger ratings and total fire bans

Harvester fire: reducing the risks

1 N Wachsmann, T Potter, R Byrne, S Knights (2010) Raising the bar with better safflower agronomy. Agronomic information and safflower case studies. GRDC, http://www.grdc.com.au/BetterSafflowerAgronomy

2 N Wachsmann, T Potter, R Byrne, S Knights (2010) Raising the bar with better safflower agronomy. Agronomic information and safflower case studies. GRDC, http://www.grdc.com.au/BetterSafflowerAgronomy

3 N Wachsmann, T Potter, R Byrne, S Knights (2010) Raising the bar with better safflower agronomy. Agronomic information and safflower case studies. GRDC, http://www.grdc.com.au/BetterSafflowerAgronomy

4 N Wachsmann, T Potter, R Byrne, S Knights (2010) Raising the bar with better safflower agronomy. Agronomic information and safflower case studies. GRDC, http://www.grdc.com.au/BetterSafflowerAgronomy