

Nutgrass (*Cyperus rotundus*)

Management considerations using plastic mulch

Research Note



Nutgrass impact

A highly variable perennial sedge, nutgrass is frequently referred to as the world's worst weed.

Nutgrass is one of the most significant weed species in Australian vegetable production, both for its presence and detrimental impact. It is particularly common in northern vegetable growing regions such as Bowen, Bundaberg and Gatton in Queensland. However, it may also be found in all other mainland states and is a serious problem on some vegetable farms in southern growing regions as well.

Very substantial production losses (up to 90% depending on crop) are often experienced when the weed is allowed to compete with crop plants for the entire cash crop growing period.

Nutgrass competes vigorously with most crops for soil moisture and nutrients, and competes with lower-growing or slower-starting crops for light. Competition is particularly significant with crops that do not form a dense canopy.

Plastic mulch

Plastic mulch films are expensive to purchase, lay and remove, however they are economically feasible within certain high-value vegetable crops such as capsicums, tomatoes, melons, and other cucurbits.

They are effective in suppressing most weeds within crop beds, and deliver a range of other benefits to the crop, including soil moisture retention, water savings, warming the soil, enhancing crop yield and quality, delivering earlier-maturing crops, controlling disease, and improving the quality of crop fruit.



Mulch transparency may influence nutgrass management



An experiment at the University of New England found that nutgrass growing under **black plastic mulch films** produced fewer leaves per plant compared to those growing under clear or translucent films of different colours (e.g. white, grey, green).

Despite this, **nutgrass is capable of penetrating black mulch films in field conditions**. This allows it to grow new tubers, creating problems for harvest and mulch removal, and allows the weed to continue to reproduce and spread.

In contrast, **clear or translucent polyethylene mulch films have some potential to reduce nutgrass tuber production**.

In this experiment, the leaves continued to grow in response to light but became soft and unable to penetrate the mulch.

This may be due to higher temperature and humidity found

beneath clear or translucent films, compared with fully opaque films. Beneath the opaque mulch films, leaf tensile strength remained higher, similar to non-mulched plants.

The experiment also resulted in up to 90% reduction in tuber production under clear or translucent green mulch films compared to a no-mulch control, while black mulch films were somewhat less effective, at 75% reduction in tubers produced.

This finding has been supported by research elsewhere (Patterson 1998), and may be due to higher temperatures under clear or translucent mulches, impacting on tuber production through solarisation.

Farmers using plastic mulches may therefore consider clear or translucent films to be an alternative to black polyethylene films in situations where the nutgrass infestation is heavy, providing these plastics do not have any other adverse impacts on their cash crop.

References and further information

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