



Sweet smothergrass - a perennial groundcover for subtropical orchards

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Sweet smothergrass (*Dactyloctenium australe*) is also known as Durban grass. It is a native of the Eastern Cape and Natal areas of South Africa, where it occurs as a pioneer on sand dunes. Sweet smothergrass is used in coastal areas for sand binding and stabilisation. It is also used extensively as a lawn grass in many coastal areas.

Smothergrass has been present on the North Coast of NSW for many years, usually in small patches under shade trees. It is thought the species was introduced into the region from South Africa by troops returning from the Boer War. However, its value as a groundcover for orchards was not recognised until experimental work, comparing a number of potentially useful species, was carried out by NSW Agriculture in the late 1990s.

One of the main limitations to obtaining good groundcover in macadamia orchards is the dense shade of mature orchards. Most grasses and legumes will grow in the middle of the inter-row area where there is sufficient light, but will not grow under the tree canopy where light is limited.

Smothergrass has proven superior to other groundcovers because it will grow in both high light conditions and in dense shade. It also fits most of the other specifications for an ideal orchard groundcover:

- easy to establish
- covers the ground quickly in spring and summer
- low-growing perennial with year-round cover
- persists for many years if managed correctly
- provides a dense mat of herbage amenable to low mowing, and supports orchard machinery
- does not appear to harbour any pests or diseases



- ideal for erosion control in macadamia orchards in the subtropics, and
- provides suitable groundcover for other orchard crops.

Care may be required to reduce excessive competition with young trees by controlling growth near the trunk.

DESCRIPTION

Smothergrass is a perennial grass species with above-ground runners (stolons) which may extend for up to a metre. Leaves are similar in size to kikuyu, but are mid-dark green, shiny, slightly hairy on the margins and slightly crinkled in appearance.

Stolons produce tufted growths every 6–10 cm which root at the nodes and are vulnerable to low mowing in the first year.

The species grows to a maximum height of 30 cm in full sun, but can be maintained as a low-mown sward. In dense shade the sward height and density is reduced. It does not have an obvious dormant season on the North Coast, remaining green and leafy through winter where frost is not prevalent.

Flowers are borne on two or three radial arms about 15 cm above the canopy. Apparently it is not economically viable to harvest seed, which tends to drop from seed heads as soon as it is mature.

SOIL PREPARATION AND PLANTING

Before planting, prune lower branches and 'hedge' the sides of the tree canopy to maximise light penetration to the orchard floor and to avoid the need for tree pruning while the grass is establishing.

Planting is best carried out in spring or autumn:

- While spring planting is best for maximum growth and spread, dry soil conditions and high temperatures may require irrigation to ensure survival of planting material.
- Soil moisture is usually highest in autumn, but plants only have a short growing period before winter.

A further difficulty with autumn planting is that orchard floor preparation for mechanical harvesting is done at that time. This usually involves mulching leaves swept to the canopy edge. This may destroy some smothergrass runners, so it is best to prepare the orchard floor in early February, before planting.

Smothergrass is propagated from turf for home gardens and urban areas. In commercial orchards large-scale laying of turf is too expensive, even using widely spaced planting rows.

Hand planting

In a mature orchard where there is no vegetation on the orchard floor, a light scarification to 10 cm with a ripper in the interrow area is sufficient preparation. Where there is already vegetation on the orchard floor, reduce it to prevent tynes clogging and to lower competition for establishing smothergrass. This can be done using a 'knockdown' herbicide or an orchard mulcher, or both.

The use of herbicides that completely kill existing vegetation should be avoided on sloping land.

DISCLAIMER

The information contained in this publication is based on knowledge and understanding at the time of writing (August 2004). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.

ALWAYS READ THE LABEL

Users of agricultural chemical products must always read the label and strictly comply with directions on the label. Users are not absolved from compliance with the directions on the label by reason of any statement made, or omitted to be made, in this publication.

The scarifier tynes should be spaced to provide rills 0.5–1 m apart into which planting material is placed. These will need to be opened out with a hand hoe when whole turf strips are planted.

Alternatively, turf rolls can be cut into smaller pieces about 10 cm square, and spaced on a 1 m grid in four or five rills running parallel with the tree row, between the canopy edges of two adjacent rows.

Or, turf 'sprigs' can be planted instead of turf. These are obtained by cutting turf, or stolons, into pieces about 5 cm long.

Bury the turf or runner pieces 3–5 cm deep, so that there is some green material appearing above the surface. Apply water to the planted area if rain is unlikely in a few days.

Machine planting

Prepare the orchard floor as for hand planting. A sprig planting machine used by commercial turf planters can be used to plant large areas of smothergrass. Turf rolls are loaded in batches onto the machine. The tractor-drawn machine breaks up the turf rolls fed into it by an operator. The turf pieces (sprigs) automatically drop into up to 10 furrows created by tynes, preset at spacings down to 25 cm. Tyne spacings of 40–50 cm are more economical on planting material, and are less likely to clog with orchard floor material. One pass of the machine down the centre of the interrow is sufficient to plant orchards with row spacings up to 8 m apart.

After-care

In macadamia orchards, roll the planted area to ensure good contact of planting material with soil, reduce soil drying and provide a firm, level surface from which to harvest nuts the following season. If there is no spring rain, water the planted area at least once a week for a month after planting. A tractor-mounted water tank with gravity-feed delivery to a makeshift boom is suitable.

MANAGEMENT

Within six months of planting in spring, and nine months after planting in autumn, smothergrass should provide 100% groundcover in all but the densely shaded area near the tree trunk in mature macadamia orchards.

If possible, avoid moving heavy machinery over the ground within six months of planting. While smothergrass is a hardy species, the use of heavy machinery over young plants in wet conditions will slow the formation of a dense stand.

Avoid mowing smothergrass until a reasonable stand is established. It may be necessary to top

weed growth within a few weeks of planting by mowing at a height of at least 10 cm to avoid cutting smothergrass runners.

Once the grass has formed a thick mat, regular mowing will keep the sward compact and eliminate rank growth where there are high light levels. Avoid low mowing in winter to reduce weed invasion and prevent weakening the stand in dense shade.

A low-mown sward is most suitable for harvest of macadamia nuts. Use of a mulcher to reduce grass growth and leaf litter between harvest rounds helps ensure maximum recovery of nuts. When grass is not kept short, harvest efficiency is reduced.

COMPARISON WITH OTHER ORCHARD GROUNDCOVERS

Smothergrass is the most promising of all groundcover species so far assessed on the North Coast of NSW. It appears to be a very effective groundcover in mature macadamia orchards—especially in dense shade near the tree trunk where establishment of other species has been difficult.

Commercially available shade-adapted grass species including bahia grass *Paspalum notatum*, broadleaf carpet grass *Axonopus compressus*, and broadleaf paspalum *Paspalum wettsteinii* do not provide as much cover in dense shade. Bahia grass and broadleaf carpet grass are slow to establish, while broadleaf paspalum tends to grow too tall and rank.

Legume species such as *Arachis pintoii* cv Amarillo and the *Arachis* hybrid may be useful when combined with smothergrass in semi-shade, but do not grow in dense shade.

FURTHER READING

- DJ Firth 2003, *Covercrops for subtropical orchards*, Agfact H6.3.10, 4th edn, NSW Agriculture.
- DJ Firth 2003, *Reducing erosion and other soil degradation in macadamia orchards*, Agnote DPI-331, 2nd edn, NSW Agriculture.