Information Sheet

10.1 Watergrass control

Identification

Watergrasses (also known as nutsedge) are grass-like weeds with aerial flower-bearing stems. These weeds belong to the Cyperaceae family and are vigorous competitors of sugarcane. It is a perennial weed with creeping rhizomes that produce attached tubers. These tubers can produce new plants.

The most common and problematic watergrass species identified in South Africa's sugarcane agriculture are *Cyperus esculentus* (yellow watergrass) and *Cyperus rotundus* (purple watergrass). These weed species are tolerant to a wide range of soil types.

Yellow watergrass and purple watergrass have similar morphological features and thus it is difficult to distinguish between them when flowers are absent. Yellow watergrass is more easily controlled than purple watergrass. It is essential that the different species be identified correctly. The table below outlines the differences between these species.

Common name	Yellow watergrass	Purple watergrass	
Botanical name	*Cyperus esculentus*	*Cyperus rotundus*	**Cyperus rotundus* subsp. *tuberosus*
Flower colour	Yellow	Purple	Straw
Leaf shape at tip	Shoulder 	Even taper 	Even taper 
Stem base	Soft	Hard swelling	Hard swelling
Tubers	Spherical	Oblong, irregular	Oblong
Tuber system	Single tubers per rootlet	Tubers in chains	Tubers in chains

*This subspecies of *C. rotundus* may be mistaken for *C. esculentus* because of its straw-coloured flowers. Flower colour should not be the only criteria in identifying *C. esculentus*. Control measures for this subspecies are the same as those for the purple-flowered *C. rotundus*.

▲ Figure 1: Purple watergrass (left) has purple to red-brown flower heads and yellow watergrass (right) has golden-yellow flower heads.

▲ Figure 2: Purple watergrass (left) has dark green foliage and tubers borne in chains along the rhizome and yellow watergrass (right) has green to yellow-green foliage and tubers borne singly at the tips of short rhizomes.

Management

There is no single treatment that will control watergrass, it is therefore recommended to apply an integrated management approach.

The most important action then is to:

1. Survey fields regularly to identify new infestations.
2. Eradicate any watergrass plants before the infestation spreads using chemical and mechanical practices.
3. Spot spray carefully with registered glyphosate products.

Bare fallow before planting:

Yellow and purple watergrass spread rapidly as they form tubers at the end of their rhizomes. At bare fallow before planting, glyphosate can be used. Glyphosate is a systemic herbicide that translocates down to the root and tuber network, killing the shoots, tubers and roots. However, tuber networks that have not emerged will not be affected, therefore repeat application will be required.

Minimum tillage:

Apply glyphosate treatment ensuring full coverage to the cane and watergrass. Purple watergrass should be well developed before application (6-10 leaf stage). Thereafter the weed should be ridged out and the new crop planted with minimum soil disturbance. A glyphosate spot spray can be applied, and spraying shields should be used to avoid damage to the new crop.

Tillage in plant cane:

Tillage in plant cane may be effective in dry conditions. During tillage, roots are cut, and tubers are brought to the surface and exposed to dry soil and dry environmental conditions. These stress conditions result in the death of the weed. It is important to note that tillage following the application of systemic herbicides is not recommended as it does not work well.

Pre-emergence control:

Following the preparation of a field, no germinated watergrass should be present. Herbicides that are effective against watergrass include active ingredients alachlor, metolachlor, acetochlor, metazachlor, sulfentrazone or registered combination products with the active ingredients metribuzin and chlorimuron-ethyl. EPTC will also give good control if it is incorporated into the soil timeously and effectively but should not be used where soil erosion is a serious hazard.

Caution: During wet years watergrass can become dominant where control of other weeds, e.g. *Panicum maximum*, has resulted in reduced competition pressure. In this situation, post-emergence control is required.

Post-emergence control:

Several chemicals and mixtures containing diuron, ametryn, metribuzin and hexazinone, are effective. MCPA + ametryn or MCPA + diuron is safe on cane and effective against these weed species. Furthermore, halosulfuron controls yellow watergrass, and has shown no negative effect on cane.

To obtain effective control, apply treatment at the early flowering stage when most of the watergrass has emerged.

Watergrass with other weeds:

Apply MSMA + ametryn when grasses are predominant (directed spray, avoid cane leaves) or MCPA + ametryn when broadleaf weeds are predominant. Spray regrowth with a registered halosulfuron product when purple watergrass is dominant.

* MSMA as a single (6 litres/ha) or split (4 litres + 4 litres/ha) application can be used to suppress purple watergrass. However, this product is extremely phytotoxic to sugarcane and will scorch the cane more than some of the new products.

Anushka Gokul (Agrochemical Scientist)

April 2022