SICKLEPOD
SENNA OBTUSIFOLIA

Sugar Research Australia

INTRODUCTION

Sicklepod, also known as Arsenic weed, is an invasive weed pest present in Queensland cane growing areas North of Sarina. The weed competes vigorously with sugarcane and can become a major problem within two or three growing seasons, reducing yield and causing harvesting problems. It is present in severe proportions in the Herbert District. Sicklepod is a Category 3 restricted plant under the Biosecurity Act 2014, which requires everyone to take all reasonable and practical measures to minimise biosecurity risks from the plant.

DESCRIPTION

Sicklepod is a vigorous growing, very competitive woody shrub that can grow to between 1.5-2.5 m tall and 1 m wide. Usually an annual plant, sicklepod has been observed to survive another year after it has been slashed or sprayed.

Rounded leaves are divided into three opposite pairs. Flowers are yellow and small, with five petals. Its seed pod is long, slender and sickle shaped, bursting open when ripe.

Mature plants can produce upwards of 10,000 seeds which can remain viable for up to 10 years and may germinate at any time of the year, under favourable conditions. Seeds are dispersed by water and animals that eat the fruit (e.g. cattle). They may also be spread as a contaminant of agricultural produce (i.e. fodder and pasture seeds) or in mud sticking to animals, as well as on footwear, machinery and vehicles.

DISTRIBUTION

Sicklepod is thought to be native to America and occurs predominantly in pasture and sugarcane along the Tropical East Coast of Queensland. It is also considered an environmental weed in the Northern Territory and northern Western Australia.

Mature sicklepod plant.

CHEMICAL CONTROL

Post-emergent herbicides
2,4-D + picloram (i.e. Tordon® 75-D), dicamba + atrazine and diquat + paraquat are registered for sicklepod control in sugarcane in Queensland. Ground control is the most effective. Younger plants are easier to kill.

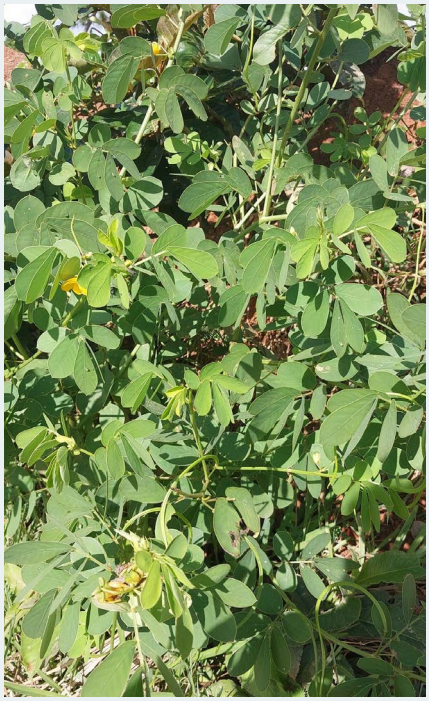
CROP	WEED TARGET	RATE /HA	COMMENTS
Sugarcane	Sicklepod less than 8-leaf stage	Apply 560 g dicamba 700WG + 1.5 atrazine 500SC or 740 g/ha dicamba 700WG + 2 L atrazine 500SC.	Can be applied using a ground boom in minimum 100-250L/ha or an aircraft in 45L/ha spray mixture. Adhere to 60 m mandatory downwind buffer zones as per atrazine label.
	Sicklepod less than 0.5 m in height	Apply 1.2 -1.6 L/ha paraquat + diquat (e.g Spray.Seed®250) with BS1000 at 120 mL/100 L or Agral at 200 mL/100 L in 250 – 400 L/ha spray mixture.	Cannot be applied by aircraft. Use direct spray after 3-4 cane leaf stage in plant cane or in ratoon higher than 10 cm.
		Apply 0.7 L Tordon® 75-D + 0.8 L 2,4D amine 625 with Uptake™ Spraying Oil at 1 L/200 L, or BS-1000 at 200 mL/200 L in 200 L/ha of spray mixture.	Good coverage of the plant is essential. Apply at an early growth stage before flowering. Do not apply 2,4D to sensitive varieties. Must be applied using very coarse or larger droplets. Apply only once per season. Adhere to the 8 weeks withholding period, timing restrictions and mandatory downwind buffer zones as per product label. Can be applied using a ground boom in minimum 200L/ha spray mixture or an aircraft in min 50L/ha spray mixture.
	Sicklepod 0.5-1 m in height	Apply 1 L Tordon® 75-D + 0.8 L 2,4D amine 625 with Uptake™ Spraying Oil at 1 L/200 L, or BS-1000 at 200 mL/200 L of spray mixture.	
	Sicklepod greater than 1 m in height	Apply 1.5 L Tordon® 75-D + 0.8 L 2,4D amine 625 with Uptake™ Spraying Oil at 1 L/200 L, or BS-1000 at 200 mL/200 L of spray mixture.	
	Sicklepod	Apply picloram 240 (e.g. Picoflex®) 220 – 470 mL/ha + 1.2 – 1.5 L 2,4-D amine 625 with Uptake™ Spraying Oil at 1 L/200 L, or BS-1000 at 200 mL/200 L of spray mixture.	

CHEMICAL CONTROL (CONTINUE)

Pre-emergent herbicides
The only pre-emergent herbicide that includes sicklepod in the directions for use on the label is flumioxazin (i.e. Valor®). A replicated pot trial conducted by SRA showed that a range of other pre-emergent herbicides effectively control sicklepod seeds as they emerge. Refer to product labels to understand their conditions of use in your specific environment and to prevent crop damage.

ACTIVE INGREDIENT	COMMERCIAL NAME	EFFICACY*
metribuzin	2 kg/ha Mentor® WG	100%
amicarbazone	1 kg/ha Amitron® 700	100%
amicarbazone + metribuzin	500 g/ha Amitron® + 1 kg/ha Mentor®	100%
diuron + hexazinone	4 kg/ha Barrage	100%
imazapic + hexazinone	630 g/ha Bobcat® i-MAXX	100%
isoxaflutole	200 g/ha Balance® 750 WG	98%
ametryn	2.8 kg/ha Ametrex®	91%
imazapic	400 mL/ha Spark®	86%
atrazine	3.3 kg/ha Gesaprim®	85%

** Efficacy expressed as percentage biomass difference compared to control a month after spraying (and sowing seeds)*



Sicklepod plant. Credits: Rova Andriamamonjy, Pl@ntnet, CC BY-SA

Pot trial comparing the efficacy of pre-emergent herbicides.

MECHANICAL CONTROL

Rotary hoeing or discing infested areas can be effective against sicklepod, with immediate planting of a competitive fallow crop or cane crop.

Slashing with a blunt blade prior to seed set can be done to reduce plant size to a manageable size. In most conditions, slashing alone will not kill sicklepod.

FARM HYGIENE

If moving from areas where the sicklepod occurs to areas that are weed-free, wash down farm vehicles and machinery to remove any soil.

REFERENCES

https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/019c49f7-e4e5-4ba1-b672-721df8128b4b/sicklepod.pdf?ETag=fb8ff6d4b2c79f4d9a151497251fef07