Midlands Grower Alert

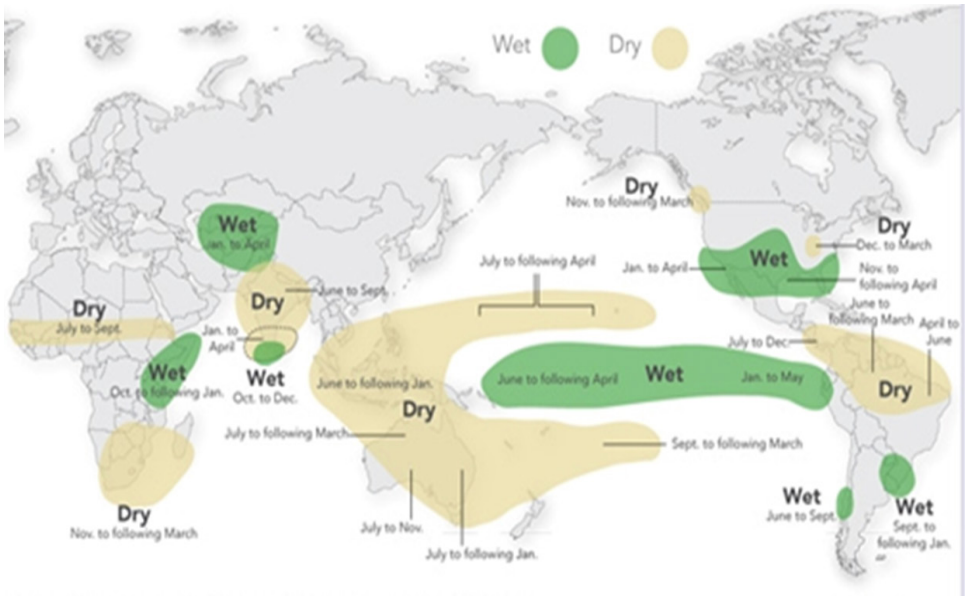
July 2023

Prepare for a dry summer!

We have enjoyed relatively good rainfall recently, with the El Niño-Southern Oscillation (ENSO) having been in a negative (wetter) (La Niña) state for the past three years. ENSO has recently weakened into a neutral state and the World Meteorological Organisation predicts an 80% chance of a full El Niño developing by September 2023. Below average rainfall and increased temperatures can be expected from November 2023 onwards. Currently, there is no indication regarding the intensity or duration of this El Niño episode.

Limiting the impact of eldana and YSA

Eldana infestations tend to intensify during periods of below-average rainfall. Similarly, the yellow sugarcane aphid (YSA) also thrives in response to plant stress. To minimise the impact of eldana and YSA during the upcoming below-average rainfall cycle, growers can take certain measures in the near term.



▲ Typical rainfall patterns during El Niño events.

Take measures to reduce plant stress.

- Managing soil acidity has several benefits, including improving nutrient availability, enhancing soil biological functioning, and minimising the negative effects of excess aluminum (Al) on root health. Excess Al is toxic to plant roots, resulting in stunted, stubby roots with damaged growing tips and reduced root hairs. This severely hampers water and nutrient uptake, particularly during drought conditions when access to water at deeper soil depths is restricted.
  - To address this, obtain topsoil samples (0-20 cm depth) and subsoil samples (20-80 cm depth) for analysis by Fertiliser Advisory Service (FAS). In soil being prepared for a plant crop, dolomitic lime and gypsum can be incorporated to 30 cm; in ratoons, lower rates of lime and gypsum, as recommended by FAS, can be applied on the surface to slowly work themselves down into the soil.
  - Nitrogen fertilisers contribute to increased acidity in soils; using one of the less acidifying N carriers, such as LAN, in split applications, will help to slow acidification.
- Consider ripping to increase root aeration and improve rooting depth. Ripping of ratoon fields should be restricted to two weeks or less following harvest; ripping later than this may damage new roots.
- Tops should never be re-burnt and should always be scattered. Eldana does not lay eggs on green leaf material and larvae only very rarely bore into the tops. A good cover of cane tops can have as much as 70% of the beneficial effects of a full residue blanket.
- On sandy soils, apply a nematicide to ensure a larger root system capable of accessing soil water at depth.
- Remember that applying chemical ripeners imposes plant stress. Eldana infested cane should never be chemically ripened.

Eldana and YSA infestations increase when excessive nitrogen fertilisation and drought combine.

Excessive N applications under conditions of water stress can greatly increase survival and reduce the generation time of these pests. This is exacerbated by sub-optimal potassium (K), phosphorous (P) and calcium (Ca) nutrition. Potassium plays an important role in plant resistance to water stress.

- Limit the amount of N available to eldana and YSA by following FAS recommendations regarding a realistic yield target. Adjust your yield target downwards for the next crop cycle.
- Consider splitting N applications. Reducing the N content of the canopy in young cane will reduce suitability for YSA without affecting plant growth. Adjustments to the second N application can be made if the expected dry summer fails to materialise.
- Apply recommended rates of K and P, despite applying reduced N levels.

Insecticides for eldana control.

Recent trials have shown that a single application of an insecticide during early stalk elongation is effective against eldana, particularly if there was an infestation in the previous crop, since a proportion of larvae remain within the stool after harvest.

If more than 10 eldana larvae per 100 stalks (>10e/100) were present at harvest, then a substantial larval population will remain in the stubble and stool below ground after harvest. Moths emerging from these are a source of reinfestation and infestation of adjoining fields. The insecticide EMMA® is registered for application to stubble.

With the likelihood that there will be below normal rainfall from late 2023, a pre-emptive insecticide application at early stalk elongation is advisable. Where possible, this should overlap with peaks in eldana moth abundance which occur in September-October-November and March-April-May. Thereafter the need for insecticides should be determined by scouting. Subsequent moth peaks should also be targeted.

Timing of an insecticide application targeting early stalk elongation (adjusted considering eldana moth peaks) for Midlands 24-month cycles.

Ratooning Month	Suggested timing of an early insecticide application based on ratooning in specific months
April	Late November to Early / Mid-December
May	Late November to Early / Mid-December
June	Mid-December / Early January
July	Early / Mid / Late-January
August	Early / Mid / Late February
September	Late February to Early / Mid-March
October	Late March to Early / Mid-April
November	Late March to Early / Mid-April
Early/Mid December	Late April

Examples of IRAC compliant eldana insecticide programmes for Midlands 24-month crops. Other spray programmes are possible. Expert advice provided by SASRI specialists or Extension should always be followed regarding the need for spraying, spray programmes, spray windows and timing.

X Periods of Increased moth abundance

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
X			X	X	X				X	X	X				X	X	X				X	X	X				X	X	X				X	X	X	
Green	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23												
Manure		P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22												
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registered products	group	application
CORAGEN or BENEVIA	diamides (28)	one application - covers 2 months
STEWARD; DOXSTARFLO; ADDITION	oxadiazines (22)	two applications - one month apart
AMPLIGO	diamide + pyrethroid (28 + 3)	two applications - one month apart
FASTAC	pyrethroid (3)	maximum of 8 applications - two weeks apart
EMMA	avermectin (6)	one application to infested stubble

Registered products for Eldana control

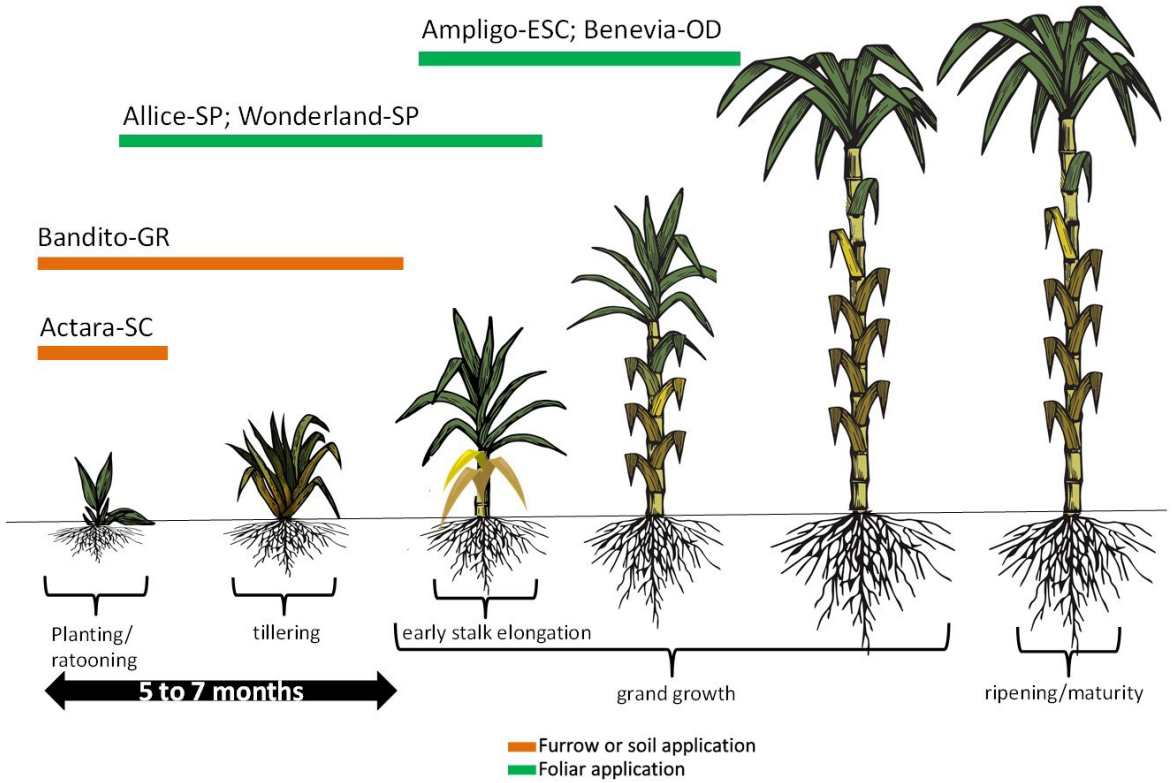
Registered product(s)	Active ingredient(s): IRAC code	Application guidelines	For control of:	Notes
EMMA SG	Emamectin benzoate: 6	**Ratoon cane:** Apply once only, 1000 l water / ha with added 1.5% Silhouette. Spray within 3 days after cutting cane. The cut ends of the stubble must not be dried out. The spray swath must be directed onto the row. The spray swath must be free of excessive crop residue to ensure that the spray mixture comes into direct contact with the cane stool and the cut stumps. Thorough wetting is essential.	Eldana	Applied to control larvae remaining in the stubble and below-ground in the stool after harvest. Reduces "dead-hearts" in ratooning cane and limits reinfestation, and infestation of adjoining fields. Spread tops after spraying.
FASTAC EC & SC	α-Cypermethrin: 3	**Ground and aerial application**: Spray at 2-weekly intervals up to 8 applications. Although the label allows for up to 8 consecutive applications, IRAC guidelines indicate no more than four applications at 2-weekly intervals covering a 60-day window.	Eldana	Pyrethroids are damaging to natural enemies. Best used during the cooler months and/or in young cane before natural enemies have had time to build-up numbers. Four sprays at 2-weekly intervals are as effective as a single spray of CORAGEN.
STEWARD EC **DOXSTAR-FLO SC** **ADDITION SC**	Indoxacarb: 22	**Ground and aerial application:** Make two consecutive applications at a monthly interval period. Alternate with a product with a different mode of action for a subsequent 60-day window.	Eldana	Two sprays at a 1-month interval are as effective as a single spray of CORAGEN
CORAGEN SC	Chlorantraniliprole: 28	**Ground and aerial application:** One application covers a 60-day spray window (equivalent to the average duration of one eldana lifecycle). Although the label allows for two consecutive applications 60-days apart, IRAC guidelines recommend that consecutive spray windows (of 60-days) should not be treated with the same mode of action.	Eldana	Least damaging of all options against natural enemies.
AMPLIGO ESC	l-Cyhalothrin & Chlorantraniliprole: 3+28	**Ground and aerial application:** Make two consecutive applications at a monthly interval period. Alternate with a product with a different mode of action for a subsequent 60-day window.	Eldana & YSA	l-cyhalothrin has a short-term knock-down effect on YSA. Chlorantraniliprole is not effective against YSA. Both actives are effective against eldana. Two sprays at a 1-month interval are as effective as a single spray of CORAGEN. The pyrethroid component may be damaging to natural enemies.
BENEVIA OD	Cyantraniliprole: 28	**Ground application:** Direct the spray towards the lower parts of the cane where the pest is present. The use of Trend 90 or H & R Crop Oil can enhance control.	Eldana & YSA	If applied for YSA and/or eldana control, may also control thrips.

ESC - Encapsulated Suspension Concentrate; EC – Emulsifiable Concentrate; OD – Oil Dispersion; SC – Suspension Concentrate; SG – Soluble Granular.

Registered products for YSA control

Registered product(s)	Active ingredient(s): IRAC code	Application	For control of:	Notes
ACTARA SC	Thiamethoxam: 4A	**Plant cane furrow**: Apply as a single in-furrow band application (30 to 50 cm wide), at planting, after placement of the seed cane, as the last operation before closing. Apply once only. **Ratoon cane:** Apply between 7 and 30 days after harvesting. For bee safety, ensure that stubble is dry before applying the product. Apply as a broad band application over the cane rows. Apply once only.	YSA	If applied for YSA control will also control thrips. Likely to have a plant physiological stress alleviating effect. 4 - 8 weeks of control.
BANDITO GR	Oxamyl & Imidacloprid: 1A+4A	**Plant cane furrow:** Apply granules with the use of a mechanical granular applicator only after the planting sets have been placed in the furrow. Cover setts and granules with soil. **Ratoon cane soil:** Apply to moist soils in the rainy season. Band apply on the soil surface on both sides of, or over, the plant rows.	Thrips, YSA & nematodes	Likely to have a plant physiological stress alleviating effect. 8 - 12 weeks of control.
ALLICE SP	Acetamiprid: 4A	**Foliar ground application:** Apply as soon as pest is noticed. Use a flat fan nozzle and direct the spray to the centre of the developing tillers for thrips or the lower leaves for YSA. **Aerial application (thrips only):**	Thrips & YSA	Of the neonicotinoids, acetamiprid has higher activity against lepidoptera. If applied for thrips and/or YSA control, may also control eldana. 2 – 4 weeks of control.
WONDERLAND SP	Acetamiprid: 4A	**Foliar ground application:** Apply as soon as pest is noticed. Use a flat fan nozzle and the spray must be directed to the lower leaves.	YSA	If applied for YSA control, will control thrips, and may also control eldana. 2 – 4 weeks of control.
AMPLIGO ESC	l-cyhalothrin & Chlorantraniliprole: 3+28	**Foliar ground application:** Apply at the first sign of infestation. Direct the spray towards the lower parts of the cane where the pest is present. The action for aphids is contact only.	YSA & eldana	l-cyhalothrin has a short-term knock-down effect on YSA. Chlorantraniliprole is not effective against YSA. Both actives are effective against eldana. The pyrethroid component may be damaging to natural enemies.
BENEVIA OD	Cyantraniliprole: 28	**Foliar ground application:** Apply as soon as the pest is first noticed. Direct the spray towards the lower leaves of the cane where the pest is present. The use of Trend 90 or H & R Crop Oil can enhance control.	YSA & eldana	If applied for YSA and/or eldana control, may also control thrips. 8 weeks of control.

ESC - Encapsulated Suspension Concentrate; GR – Granular; OD – Oil Dispersion; SC – Suspension Concentrate; SP – Soluble Powder.



▲ Suggested timing of use for registered products for YSA control, considering instructions given in their respective product labels and conservation of natural enemies.

- ACTARA® (thiamethoxam) and BANDITO® (oxamyl plus imidacloprid) are pre-emptive options for YSA control both of which are applied to the soil/stubble.
- Thiamethoxam and imidacloprid are known to have plant physiological effects that help alleviate stress. BANDITO® is also a registered nematicide and is likely to be beneficial on sandy soils.
- However, these active ingredients, oxamyl, imidacloprid and thiamethoxam, are more damaging to natural enemies than acetamiprid (ALLICE®; WONDERLAND®) and cyantraniliprole (BENEVIA®).
- Pre-emptive use of ACTARA® and BANDITO® mitigates any negative effect of their active ingredients on natural enemies. Actives are taken up into the plant by the roots, move to the leaves but are not present on the leaf surfaces. In addition, natural enemies are not likely to be as abundant during early crop growth compared to later.
- Foliar application against YSA is restricted to the use of ALLICE®, WONDERLAND®, AMPLIGO® and BENEVIA®. (NB: the pyrethroid component of AMPLIGO® is responsible for YSA control, it is however damaging to natural enemies).
- AMPLIGO® and BENEVIA® are also registered for eldana control. If used for YSA control when stalk elongation has already commenced, protection against eldana infestation will be an added benefit.