

Stalk borer in maize and sorghum

Busseola fusca African maize stalk borer



Lines of holes in leaves made by the stalk borer (Photo A. Bruntse, BioVision)



1 to 1.5 cm caterpillars (Photo by D. Cugala, Stemborer team, icipe)



Holes of caterpillars inside stem. Brown frass. Control tool ate (Anne Bruntse, BioVision)

Prevention	Monitoring	Direct Control	Direct Control	Restrictions
<ul style="list-style-type: none"> Plough, slash, disk and/or harrow stems and stubbles after harvest. This breaks the stems and exposes the caterpillars to natural enemies and extreme weather. It limits the pest in the following season's crops. However, if there are no major insect pests or diseases in the crop, then leave residues as they improve the soil, and prevent water loss. Burn residues after harvest to kill caterpillars and pupae, although this is not advisable for soils with low organic matter. Burning is also not allowed in many areas of Zambia. Destroy alternate hosts like wild sorghum to reduce stalk borers. Rotate with legumes, but do not rotate between maize, millet and sorghum. 	<ul style="list-style-type: none"> Monitor from 3 weeks after planting onwards. Inspect two times per week until the plants flower. First signs of stalkborer attack are small holes or 'windows' in straight lines across the newest leaves of maize or sorghum. Check for white-yellowish larvae with a grey tinge or pinkish colour. Threshold for stalk borers is 3 to 10 larvae on each plant out of 100 plants. Look for holes on stems and dead hearts (but then direct control is too late). It is difficult to control stalk borers in later stages because larvae bore into stalks and dead-heart symptoms appear. Larvae are protected inside the stalks. 	<ul style="list-style-type: none"> Apply ash or dry soil, by putting one teaspoon of ash or soil into the leaf-funnel of young plants. Too much soil or ash can damage the leaf. Ash or soil should be used before the appearance of any symptoms. This means when stalk borers are known from the area or the last cropping season. Apply 25-50g of neem cake powder diluted per litre water every 10 days until maize flowers. The spray should be applied into the leaf funnel every 10 to 14 days until flowering. 	<ul style="list-style-type: none"> When using a pesticide or botanical, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, pre-harvest interval, max number of sprays, restricted re-entry interval. Do not empty into drains and water sources. WHO toxicity class II pesticides might not be allowed in local IPM schemes. Always consult recent list of registered pesticides of ZEMA 	<ul style="list-style-type: none"> <i>Bacillus thuringiensis</i> - based products (e.g. Ascopel WP, and others). This is a multisite action insecticide based on bacteria. Spray on to leaf sheath funnels of young leaves immediately after preparation. WHO class III (slightly acute hazardous); Pre-harvest interval p.h.i. 1 d, restricted re-entry interval r.e.i. 1 d, max 3 sprays / season. WHO toxicity class II (moderately acute hazardous); p.h.i: 14 days; r.e.i. 7 days after spray; max 2 sprays per season. Do not apply to plants suffering from drought stress. Dangerous to fish. Do not contaminate surface waters or ditches. High risk to nearly all beneficial insects like pollinators and predators. Therefore, avoid spraying within 6m of field boundary.

Zambia

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