Management of insect-pests in ratoon crop of sugarcane

Stage	Insect pests	Management
Ratoon initiation	Scales, mealy bug, pyrilla, black bug, woolly aphid and army worm	Stubble shaving, removal of water shoots and late shoots, burning of crop debris
Stubble sprouting to June	Termites	Chlorpyriphos / Endosulfan @ 1 kg a.i./ha through irrigation water
	Shoot borer, root borer, top borer	Collection and destruction of egg masses and infested shoots
	Scales, mealy bugs	Spraying with Malathion (0.1%) or Dimethoate (0.08%) after detrashing at 4-5 internode stage
	Black bug	Spray with Endosulfan or Chlorpyriphos or Quinalphos @ 0.2 kg a.i./ha
	Pyrilla	1. Redistribution of *Epiricania melanoleuca* cocoons and egg masses from high population bearing fields to low population ones by stapling cocoon/egg masses bearing leaf pieces on lower surface of leaves 2. If parasitoid is absent, chemical spray can be undertaken provided provided chemical does not kill the parasitoid 3. Foliar spray of *Metarhizium anisopliae* @ 10^6-10^7 spores/ml 4. Release of adults of pyrilla infested with *M. anisopliae* spores @ 250 adults / ha.
	White fly	Spraying with Acephate (0.1%) or Confidor (0.05%) or Endosulfan (0.1%)
	Woolly aphid	Pockets of infested clumps may be sprayed with Metasystox or Endosulfan (0.05%) 2 times at 15 days interval during summer months.
July to August	White grub	1. After first shower of monsoon, adult beetles should be collected from the nearby trees and killed. For effective collection light trap may be used. 2. When adult (beetles) emerge, soil application with Quinalphos 5G @ 2.5 kg a.i./ha.
	Woolly aphid	1. Release of predators (*Dipha aphidivora* or *Micromus igorotus* in infested field where predator activity is absent or low. 2. In case of stray incidence of the pest, detrash the infested leaves and burn.
July to October	Stalk borer, internode borer, root borer	1. Release of *T. chilonis* @ 50000 parasitised eggs/ha at 10 days interval 2. Release of *Cotesia flavipes* @ 500 mated females / ha at weekly intervals till November
	Gurdaspur borer	Destruction of infested canes with gregarious stage of the pest.
September till harvesting	Stalk borer	I) Detrashing of dried foliage at 30 days interval II) Removal of late shoots at 15 days interval III) Spray of Monocrotophos @ 0.75 kg a.i./ha on detrashed canes (recommended for ring planted canes)
	Plassey borer	Harvesting should be finished by February end.

Integrated Management of Major Insect - Pests of Sugarcane

Sponsored by :

Government of India

Ministry of Agriculture

(Department of Agriculture & Cooperation)

Directorate of Sugarcane Development

8th Floor, Hall No. 3, Kendriya Bhawan, Aliganj, Lucknow - 226 024 (U.P.)

Developed, Designed and Published by :

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Integrated Management of Major Insect-Pests of Sugarcane

Sugarcane is a long duration crop of 10-12 months and therefore, is liable to be attacked by a number of insect-pests . According to an estimate, sugarcane production declines by 20.0% by insect-pests. To increase the crop productivity, management of insect-pests is of great significance. Due to diversity in agro ecological conditions, the importance of insect-pests varies and therefore, management strategy should be adopted accordingly.

Several management strategies have been developed as a result of research and development work. In order to save environment from chemical pollution, use of biocontrol has been given utmost attention.The management technologies have been integrated as per need for increasing the efficiency. Calender of management strategy has been given in the following tables for the benefit of sugarcane growers.

Management of insect-pests in plant crop of sugarcane

Stage	Insect-pests	Management
Selection of seed	Cane borers, scale, mealy bug, and woolly aphid	Canes affected with such insect-pests should be discarded. Canes from woolly aphid infested field should not be used for seed.
Sett treatment	Scale, woolly aphid	Setts should be dipped in Malathion (0.1%) or Dimethoate (0.08%) for 15 min. before planting.
At planting time	Termite, root borer, early shoot borer	Chlorpyriphos / Endosulfan @ 1 kg a.i./ha to be sprinkled on setts placed in furrows.
From emergence up to May	Early shoot borer	1. Release of *Sturmiopsis inferens* @ 125 adult females / ha (for coastal region in Tamil Nadu) 2. Granulosis virus (@ 10^7-10^9/ml) spray on foliage (for coastal region in Tamil Nadu and Karnataka)
	Thrips	Foliar spray of Dimecron (0.03%) or Monocrotophos (0.04%) or Dimethoate (0.04%)
April – June	Woolly aphid	Intensive survey for locating woolly aphid infestation especially near water source (river, pond, marshy land). Alternative hosts may also be searched. Such foci of aphid infested plants should be sprayed with insecticide like Metasystox (0.05%) or Endosulfan (0.05%) 2-3 times at 15 days interval.
June-July	Top borer	1. Soil application of Carbofuran 3G (1.0 kg a.i.) or Phorate 10 G (3.0 kg a.i) / ha as and when moth of II brood appear. In eastern U.P. and Bihar, application should be done in 2nd week of June, while in western U.P., Haryana and Punjab (in case of high sugar varieties) in last week of June. 2. In tropics, release of laboratory reared *Isotima javensis* in field.
July to August	White grub	1. After first shower of monsoon, adult beetles should he collected from the nearby trees and killed. For effective collection, light trap may be used. 2. When adult (beetles) emerge, soil application with Quinalphos 5G @ 2.5 kg a.i./ha.
	Woolly aphid	1. No insecticide spray against the pest. 2. Release of predators of woolly aphid, *Dipha (Conobathra) aphidivora* and *Micromus igorotus* in infested field where predator activity is absent or low.
July to September	Gurdaspur borer, Plassey borer	1. Mechanical removal of infested plants bearing gregarious larval stage through a campaign.
	Pyrilla	1. Redistribution of *Epiricania melanoleuca* cocoonand egg masses from high population bearing fields to low population ones by stapling cocoon/egg bearing leaf pieces on lower side of leaves. 2. Foliar spray of *Metarhizium anisopliae* @ 10^6-10^7 spores/ml 3. Release of adult of Pyrilla infested with *M.anisopliae* spores @ 250 adults/ha in infested field.
July to October	Stalk borer, Internode borer, Gurdaspur borer, root borer	1. Release of *Trichogramma chilonis* through Trichocards @ 50,000 parasitised eggs / ha (4 Trichocards / ha) at 10 days interval. 2. Release of *Cotesia flavipes* @ 500 mated females / ha at weekly intervals till November
October to November	Stalk borer	1. Detrashing of leaves at monthly intervals 2. Removal of water or late shoots at fortnightly intervals. 3. Sprayof Monocrotophos @ 0.75 kg a.i./ha on detrashed canes (recommended for ring planted canes)
November to December	Stalk borer	Spray *Beauvaria bassiana* @ 10^7 spores/ml
	Black bug	Release of black bug adults infested with *Beauvaria bassiana* @ 5000 adults / ha
At harvesting of crop	All insect pests	1. Stubble shaving flush with the ground. 2. Removal and destruction of water / late shoots 3. Burning of crops debris
	Plassey borer	Early harvesting of canes latest by February end.