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भारतसरकार/ Government of India

कृषि एवं किसान कल्याण मंत्रालय / Ministry of Agriculture & Farmers Welfare
कृषि एवं किसान कल्याण विभाग / Department of Agriculture & Farmers Welfare
वनस्पति संरक्षण, संगरोध एवं संग्रहनिदेशालय / Directorate of Plant Protection, Quarantine & Storage
एनएच4, फरीदाबाद(हरियाणा) – 121 001/NH-IV, Faridabad (Haryana) – 121 001

Dated: 15.07.2022

To

The Directors of Agriculture
Punjab, Haryana, Rajasthan, Madhya Pradesh,
Tamil Nadu, Karnataka & Gujarat

Sub: Advisory on Pink Boll worm (*Pectinophora gossypiella*) and white fly (*Bemisia tabaci*) on cotton crop -reg.

Sir,

I have the honor to bring to your notice that the incidence of Pink boll worm is reported at trace intensity from various parts of the cotton growing areas especially few districts of Punjab & Karnataka and Whitefly at low to moderate intensity in various districts of Punjab, Gujarat, Madhya Pradesh, Rajasthan & Tamil Nadu, keeping in view the current crop stage and prevailing weather conditions population of these pests are expected to flare up . Therefore, cotton crop should be monitored regularly for pest build up and adopt Integrated Pest Management techniques. AESA based IPM Package of practices of cotton and pest specific package of practices of Pink Boll Worm and White fly are available at DPPQ&S website in the link <http://ppqs.gov.in/ipm-packages> .Important IPM practices are listed below

Pink Boll worm:

- Deep summer ploughing to expose the pupa to birds and sunlight
- Infested crop residues should be removed and destructed promptly & the egg masses and larvae should be collected and destroyed.
- Farmers must be advised to maintain field sanitation at the vicinity of the main field and nearby areas must be kept free from weeds.
- Take up sowing in the month of June with early maturing short duration Bt cotton hybrid/ varieties recommended for particular region
- Refuge (20 % non Bt seeds) should be planted along with Bt cotton, if provided in separate packet
- Conserve and augment natural enemies of pink bollworm includes
- Parasitoids- *Trichogramma brasiliensis* (egg), *Chelonus* sp. (egg-larval), *Campoletis chloridae* (larval), *Bracon lefroyi* (larval)
- Predators- *Chrysoperla carnea*, Coccinellids, Reduviid bug, Pentatomid bug
- *Trichogramma* parasitoids may be released directly or Tricho-card can be pinned to the leaves of standing cotton plants in the fields for destroying the egg stage of PBW.
- One spray of neem seed kernel extract (NSKE) 5% may be taken up at 60 days after sowing which provides anti feedant and ovicidal effect
- Use of neem based pesticides (Mentioned in Annexure-I) in the initial stage of the pest for augmentation and conservation of potential parasitoids and predators.

.....To be contd

- Use PB rope L Phermone traps (140 mg of a.i /dispensar & 9875 dispensars to be used for 25 ha of area) for the control of adult male moths.
- Pesticides must be used as per label claim approved by the registration committee. Detailed information is available on directorate's website. A list of recommended pesticides for pink boll worm is attached at annexure-I

White Fly

- Set up yellow sticky traps @ 40 per acre to monitor white fly population.
- Farmers must be educated to identify, conserve and augment the natural enemies available in the cotton fields like Parasitoides like *Encarsia formosa*, *Encarsia* sp., *Eretmocerus mundus* and predators like *Geocoris* sp., *Zelus* sp. Spiders, Syrphid fly, *Chrysoperla*, Lady bird beetle, Dragon and Damsel flies, Praying mantis, Predatory ants, bugs & wasps which is helpful to suppress the white fly population.
- Spray Homemade Neem Extract @ 2.5 l/ha against white fly. It can be prepared by boiling 4 kg terminal parts of the shoots of neem tree including leaves, green branches and fruits in 10 litre of water for 30 minutes and then filter this material through muslin cloth and use the filtrate for spraying at recommended dose
- *Verticillium lecanii* 1.15%WP Strain – AS MEGH-VL Accession No – MCC-1028 (Containing 1×10^8 CFU/gram) could be used @ 2.5 kg/ha in 500 litre of water against white flies.
- Azadirachtin 0.15%, (Neem Seed Kernel Based EC) @ 2.5-5.0 l a.i per ha in 500-1000 litres of water for which waiting period is 5 days.
- Pesticide must be used as per label claim approval by the Registration Committee. Detailed information is available at directorate website. However, list of recommended pesticides for cotton whitefly is attached at **Annexure-II**

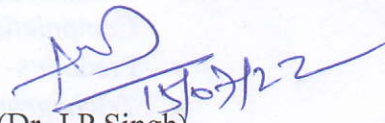
Further the following strategies should be adopted for spreading awareness among farmers

- Mobilization of extension functionaries at grass route level for regular monitoring of pest status.
- Awareness among farming community through newspapers, printing and electronic media , KisanGosthi, leaflet and pamphlets.
- The concerned officials at the district/ division/ block level may be advised to take the suitable plant protection measures immediately

The detailed information on pest incidence may also be sent to the directorate through email ppa@nic.in or appa.ipm-dppqs@gov.in urgently to apprise the same to Department of Agriculture & Farmers' Welfare.

Yours faithfully

Encl: as above


(Dr. J.P. Singh)

Plant Protection Adviser

Copy for information:

1. PPS to Joint Secretary(PP), DAC & FW, Krishi Bhawan, New Delhi- I 10001
2. The Directors of Agriculture of other cotton growing states with the request to keep close watch on pest build up & take appropriate measures as indicated above
3. PPS to PPA for information
4. Officer In-charges, all CIPMCs of cotton growing states with directions to conduct regular survey in the area to ensure and necessary follow-up with the state authorities.

Annexure-I

Approved registered Pesticides for Pink Boll worm of Cotton

Chemical	Pest	Dosage/Ha			Waiting Period(Days)
		a.i (gm)	Formulation (gm/ml)	Dilution in Water (Liter)	
Acephate 75.00% SP	Bollworms	584.00	780.00	500-1000	15
Azadirachtin 0.15% EC w/w Min. Neem Seed Kernel Based	White fly, Bollworms	-	2500-5000	500-1000	05
Azadirachtin 00.03% WSP (300 PPM) Neem Oil Based	Aphids, Jassids, Whitefly, Bollworms		2500-5000	500-1000	07
Bacillus thuringiensis var. 4rustaki, serotype H-39, 3B, Strain Z-52	Bollworms, Spodoptera		0.75-1.0 kg	500-750	
Bacillus thuringiensis var. 4rustaki	Bollworm		750-1000	750-1000	
Alphacypermethrin 10.00% EC	Bollworm	15.00-25.00	165.0-280.0	600-1000	07
Alphacypermethrin 10.00% SC	Bollworm	25.00-30.00	250.0-300.0	500-1000	10
Acephate 97.00% DF	Jassids & Boll worm complex	436.50 - 582.00	450.0-600.0	500	48
Beta-cyfluthrin 02.45% SC	Bollworm	12.5-18.75	500.0-750.0	500-1000	20
Bifenthrin 10.00% EC	Bollworms, Whitefly	80.0	800.0	500	15
Chlorpyrifos 20.00% EC	Aphid, Bollworm, Whitefly	250.0	1250	500-1000	--
Cypermethrin 10.00% EC	Bollworm	50.0-70.0	550-760	150-1000	07
Cypermethrin 25.00% EC	Bollworm	40.0-70.0	160-280	400-800	--
Deltamethrin 11.00% w/w EC	Bollworm	12.50	125.0	400-600	30
Deltamethrin 25.00% Tablet	Bollworm	12.50	50.0	400-600	30
Diflubenzuron 25.00% WP	Bollworm	75.00	300.0	500-1000	
Emamectin benzoate 05.00% SG	Bollworm	9.5-11.0	190-220	500	10

Emamectin benzoate 01.90% EC	Bollworm	11.00	580	500	15
Ethion 50.00% EC	Bollworm	1000.0	2000	500-1000	25
Fenpropathrin 30.00% EC	Pink boll worm, Spotted boll worm,	75.0-100.0	250-340	750-1000	14
Fipronil 05.00% SC	Boll worms	100.0	2000	500	07
Fenvalerate 20.00% EC	Boll worm	75.0-100.0	375-500	700-900	07
Indoxacarb 14.50% SC	Boll worm	75.0	500.0	600-1000	16
Methomyl 40.00% SP	Boll worm	300.0-450.0	750-1125	500-1000	10
Quinalphos 01.50% DP	Boll worm	450.0	30000	From square formation onwards	
Thiodicarb 75.00% WP	Boll worm	750.0	1000	500	30
Acephate 50.00%+Bifenthrin 10.00% WDG	Leaf hopper, Thrips, Bollworms	400.0+80.0	800	500-750	20
Cypermethrin 10.00%+Indoxacarb 10.00% w/w SC	Jassids, Thrips, Bollworms	50.0+50.0	500	400-1000	07
Thiamethoxam 12.60%+Lambda-cyhalothrin 09.50% ZC	Jassids, Aphids, Thrips, Bollworms	44.0	200	500	26
Cypermethrin 10.00%+Indoxacarb 10.00% SC	Jassids, Thrips, Bollworms	50.0+50.0	500	400-1000	07

Approved registered Pesticides for White Fly (*Bemisia tabaci*) of Cotton

Chemical	Pest	Dosage/ha			Waiting period
		a.i (gm) Formulation (gm/ml) Dilution in Water (Liter)	a.i (gm) Formulation (gm/ml) Dilution in Water (Liter)	a.i (gm) Formulation (gm/ml) Dilution in Water (Liter)	
Acetamiprid 20.00% SP	White Fly	20.00	100.00	500-600	15
Afidopyropen 50 g/L DC	White Fly	50.00	1000	500-750	25
Bifenthrin 10.00% EC	White Fly	80.0	800	500	15
Buprofezin 25.00% SC	White Fly	250.0	1000	500-750	20
Buprofezin 70.00% DF	White Fly	250-300	357-429	500	20
Chlorpyrifos 20.00% EC	White Fly	250.0	1250	500-1000	-
Clothianidin 50.00% WDG	White Fly	20.0-25.0	40.0-50.0	500	20
Diafenthiuron 47.80% SC	White Fly	239	500	500	30
Diafenthiuron 50.00% WP	White Fly	300.0	600.0	500-1000	21
Dinotefuran 20.00% SG	White Fly	25.0-30.0	125-150	500	15
Ethion 50.00% EC	White Fly	750.0-1000.0	1500-2000	500-1000	-
Fenpropathrin 30.00% EC	White Fly	75.0-100.0	250-340	750-1000	14
Fipronil 05.00% SC	White Fly	75.0-100.0	1500-2000	500	06
Flonicamid 50.00% WG	White Fly	75.0	150	500	25
Imidacloprid 48.00% FS	White Fly	300-540	500-900	--	--
Imidacloprid 70.00% WS	White Fly	350.0-700.0	500-1000	-	-
Imidacloprid 17.80% SL	White Fly	20.0-25.0	100.0-125.0	500-700	40
Monocrotophos 15.00% SG	White Fly	200.0	1333	500-1000	58
Monocrotophos 36.00% SL	White Fly	150.0	375	500-1000	--
Profenofos 50.00% EC	White Fly	500.0	1000	500-1000	15
Pyriproxyfen 10.00% EC	White Fly	100.0	1000	500	31
	White Fly	50.0-60.0	500-700	500	50
Pyridaben 20.00% w/w WP	White Fly	100.0	500	500	28
Spiromesifen 22.90% SC	White Fly	144.0	600	500	10
Thiacloprid 21.70% SC	White Fly	120.0-144.0	500.0-600.0	500	52
Thiamethoxam 25.00% WG	White Fly	50.0	200	500-750	21
Acephate 50.00% + Imidacloprid 01.80% SP		518.0	1000	500	40
Buprofezin 15.00%+Acephate 35.00%	White Fly	187.5 + 437.5	1250	500	--

w/w WP					
Chlorpyrifos 50.00%+Cypermethrin 05.00% EC	White Fly	500.0+50.0	1000	500-1000	15
Diafenthiuron 47.00%+Bifenthrin 09.40% w/w SC	White Fly	293.75+58.7	625	500	30
Fipronil 04.00%+Acetamiprid 04.00% w/w SC	White Fly	40.0+40.0	1000	500	30
Indoxacarb 14.50%+Acetamiprid 07.70% w/w SC	White Fly	88.8+111.0	400-500	500	30
Pyriproxyfen 05.00%+Fenpropathrin 15.00% EC	White Fly	60.0+60.0	600	500	19
Pyriproxyfen 05.00%+Diafenthiuron 25.00% SE	White Fly	250.0+50.0- 312.5+62.50	1000-1250	500	35
Pyriproxyfen 10.00%+Bifenthrin10.00% w/w EC	White Fly	60.0+60.0	600	500	19