

Bibliography of Cicadulina (Homoptera: Cicadellidae) vectors of maize streak and related viruses (NRI Bulletin No. 40)

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Bulletin No. 40

BIBLIOGRAPHY OF CICADULINA (HOMOPTERA: CICADELLIDAE) VECTORS OF MAIZE STREAK AND RELATED VIRUSES

Overseas Development Administration

NATURAL RESOURCES INSTITUTE

BULLETIN No. 40

BIBLIOGRAPHY OF CICADULINA (HOMOPTERA: CICADELLIDAE) VECTORS OF MAIZE STREAK AND RELATED VIRUSES

C. DAVIS



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The Natural Resources Institute (NRI) is the scientific arm of Britain's Overseas Development Administration. NRI's principal aim is to increase the productivity of renewable natural resources in developing countries through the application of science and technology. Its areas of expertise are resource assessment and farming systems, integrated pest management, and food science and crop utilization.

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Introduction

There are 22 *Cicadulina* species (Webb, 1987b), of which 12 have been identified as being involved in the transmission of virus diseases affecting cereals and gramineae. The most important of these virus diseases are caused by geminiviruses, and of the 12 known vector species, ten are believed to transmit maize streak or related geminiviruses including sugarcane streak, ragi (pearlmillet) streak and bajra (*Pennisetum typhoides*) streak. These ten species as listed below with synonyms in parenthesis, are the subject of this bibliography.

Cicadulina arachidis China

Cicadulina bipunctata (Melichar) (= Gnathodus bipunctatus Melichar,

Cicadula bipunctella Matsumura, Cicadulina zeae China,

C. bipunctella bipunctella (Matsumura), C. bipunctella zeae China,

C. bipunctata (Melichar))

Cicadulina chinai Ghauri *Cicadulina ghaurii* Dabrowski *Cicadulina latens* Fennah *Cicadulina mbila* (Naude) (*=Balclutha mbila* Naude) *Cicadulina niger* Ghauri *Cicadulina parazeae* Ghauri *Cicadulina similis* China *Cicadulina storeyi* China (*=C. triangula* Ruppel, *C. nicholsi* Storey)

The bibliography is divided into two sections. The first is an alphabetical listing of references by author, and the second is a geographical index dividing the references by country location. Where a large volume of literature has been produced on one country, references in the geographical index have been subdivided by subject headings. Also included in Section Two is a table of references arranged by major subject and period of publication.

In Section One, wherever possible, non-English language reference titles are given in the original language, with a translation following in parenthesis. For non-alphanumeric languages the title is given in English, with the language indicated in square brackets afterwards.

In Section Two each reference is accompanied by a brief note on its contents, and where appropriate, the species of *Cicadulina* included in the study. Synonyms used are again taken from Webb (1987b). Where junior synonyms are used in a reference, they are listed in parenthesis after the preferred synonym i.e. *C. storeyi* (*=triangula*).

This bibliography has been constructed from a Micro-CAIRS database based at the Natural Resources Institute in Chatham. The database is used as an information and planning resource for research conducted at the Institute. Further information on this database is available from the author at:

Pest Ecology Department, Natural Resources Institute, Central Avenue, Chatham Maritime, Kent ME4 4TB, United Kingdom.

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ABBREVIATIONS USED IN THE BIBLIOGRAPHY

- Association of Applied Biologists AAB CIMMYT Centro Internacional de Majoramiento de Maiz Y Trigo Centre de cooperation internationale en recherche agronomique CIRAD pour le developpement Commonwealth Mycological Institute CMI FAO Food and Agriculture Organization of the United Nations IITA International Institute of Tropical Agriculture Institut de Recherches Agronomiques Tropicales et des Cultures IRAT Vivrieres **MSIRI** Mauritius Sugar Industry Research Institute Institut International de Recherche Scientifique pour le ORSTOM Developpement a Adiopodoume (formerly Office de la Recherche Scientifique et Technique Outre-Mer)
- USDA United States Department of Agriculture

Section 1

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Section 2

Geographical index

Reference number, authors and date		Comments	<i>Cicadulina</i> species
Non-	country-specific		4
15	Bajet and Renfro (1989)	Reasons for favouring resistance-to vectors as a control strategy	C. arachidis C. latens C. mbila C. parazeae C. similis C. storeyi (=triangula) C. storeyi
32	Commonwealth Institute of Entomology (1986)	Distribution map of <i>C. mbila</i>	C. mbila
34	Conti (1981)	Refers to importance of wild hosts in maize streak epidemiology	
115	Kimura <i>et al</i> . (1975)	Ferritin detected in C. mbila	C. mbila
Тахо	nomy and morpholog	zv	
67	Evans (1947)	Classification of Jassoidea	Cicadelloidea (=Jassoidea) <i>C. bipunctata (=zeae)</i>
79	Ghauri (1971)	<i>C. niger</i> Ghauri is described as a new species from Kenya; <i>C. bipunctella zeae</i> is recorded in Egypt, India and Saudi Arabia; <i>C. chinai</i> is recorded in Egypt and India	<i>C. bipunctata (=bipunctella zeae) C. chinai</i>
159	Nielson (1968)	Taxonomy of leafhopper vectors. Maize streak vectors are given as <i>C. bipunctella</i> <i>zeae, C. latens, C. mbila, C.</i> <i>parazeae</i> and <i>C. storeyi</i>	C. bipunctata (= bipunctella zeae) C. latens C. mbila C. parazeae C. storeyi

Reference number, authors and date		Comments	<i>Cicadulina</i> species
160	Nielson (1979)	Brief taxonomic guide to leafhopper vectors. These are listed as <i>C. bipunctella zeae</i> , <i>C. latens</i> , <i>C. mbila</i> , <i>C.</i> <i>parazeae</i> and <i>C. storeyi</i> for maize streak; <i>C. bipunctella</i> <i>zeae</i> , <i>C. storeyi</i> and <i>C. mbila</i> for maize mottle; and <i>C.</i> <i>mbila</i> for sugarcane and pearlmillet streak	C. bipunctata (= bipunctella zeae) C. latens C. mbila C. parazeae C. storeyi
201	Ruppel (1965)	Taxonomic review of the genus <i>Cicadulina</i> . <i>C. triangula</i> Ruppel is recorded as a new species	C. arachidis C. bipunctata (= bipunctella = bipunctella bipunctella = bipunctella zeae) C. chinai
			C. chinai C. latens C. mbila C. parazeae C. similis C. storeyi (=triangula)
264	Vilbaste (1976)	<i>C. zeae</i> China is synonymized with <i>C. bipunctata bipunctata</i> (Melichar)	C. bipunctata (= bipunctata bipunctata = zeae)
266	Webb (1987a)	Distribution and male genitalic variation in <i>C.</i> <i>bipunctata</i> and <i>C. bimaculata</i>	C. bipunctata C. bimaculata
267	Webb (1987b)	Taxonomic and vector status review includes species key and synonyms. <i>C. triangula</i> Ruppel is a junior synonym to <i>C. storeyi</i> China, and <i>C.</i> <i>bipunctella zeae</i> China is a junior synonym to <i>C.</i> <i>bipunctata</i> (Melichar)	C. arachidis C. bipunctata C. chinai C. ghaurii C. latens C. mbila C. niger C. parazeae C. similis C. storeyi
268	Zakhvatkin (1935)	<i>C. zeae</i> China is synonymized with <i>C. bipunctella</i> Matsumura	<i>C. bipunctata (=bipunctella =zeae)</i>
269	Zakhvatkin (1946)	<i>C. bipunctella zeae</i> China is described as a new species	C. bipunctata (=bipunctella zeae)
Econ	omic role and damag	ge	
90	Hill (1983)	Damage, pest status, biology, distribution and control	C. mbila

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Reference number, authors and date		Comments	Cicadulina species
123	Maramorosch (1963)	Diseases resulting from <i>C. bipunctella zeae</i> and <i>C. pastusae</i> infestations are discussed	C. bipunctata (=bipunctella zeae) c. pastusae
189	Rose (1977)	Summarizes economic importance of <i>Cicadulina</i> spp. and their control	C. bipunctata (=bipunctella zeae) C. latens C. mbila C. parazeae C. storeyi
Vect	or status and virus tr	ansmission	
17	Bock (1974)	Description of maize streak virus and transmission, with vectors listed as <i>C. bipunctata</i> <i>bipunctata, C. latens, C.</i> <i>mbila, C. parazeae</i> and <i>C.</i> <i>storeyi</i>	C. bipunctata (= bipunctata bipunctata) C. latens C. mbila C. parazeae C. storeyi
18	Bock (1982)	Epidemiology of tropical geminiviruses	
19	Bock and Bailey (1989)	Summary of sugarcane streak transmission by <i>Cicadulina,</i> and its control	C. mbila
21	Boulton <i>et al</i> . (1986)	Molecular pathology of maize streak in <i>C. mbila</i> and <i>C. triangula</i>	C. mbila C. storeyi (=triangula)
22	Boulton <i>et al.</i> (1983)	Nucleic acid hybridization detection of maize streak in <i>C. mbila</i>	C. mbila
35	Conti (1985)	Maize streak vectors are listed as <i>C. bipunctella zeae, C.</i> <i>latens, C. mbila, C. parazeae</i> and <i>C. storeyi. C. mbila</i> is also listed as the vector of pearlmillet streak	C. bipunctata (= bipunctella zeae) C. latens C. mbila C. parazeae C. storeyi
36	Cook (1981)	Brief summary of maize streak. Vectors listed are <i>C.</i> <i>bipunctella zeae, C. latens, C.</i> <i>mbila, C. parazeae</i> and <i>C.</i> <i>storeyi</i>	C. bipunctata (= bipunctella zeae) C. latens C. mbila C. parazeae C. storeyi
54	Damsteegt (1984)	Effect of temperature on <i>C.</i> <i>mbila</i> oviposition, nymphal development, mortality and maize streak incubation	C. mbila
56	Dekker <i>et al</i> . (1986)	Comparison of strains of maize streak and their transmission	

Reference number, authors and date		Comments	<i>Cicadulina</i> species
80	Gordon (1984)	<i>C. triangula</i> is the vector of maize mottle chlorotic stunt; which is now reported from East Africa and Sao Tome. Includes a recommended strategy for resistance breeding against it, and experimental acquisition of corn stunt spiroplasma by <i>Cicadulina</i> spp.	C. storeyi (=triangula)
88	Harris (1983)	Lists vectors of maize streak as <i>C. bipunctella zeae, C.</i> <i>latens, C. mbila, C. parazeae</i> and <i>C. storeyi;</i> and <i>C. mbila</i> as vector of eastern wheat striate	C. bipunctata (= bipunctella zeae) C. latens C. mbila C. parazeae C. storeyi
91	Hill and Waller (1988)	Importance of maize streak and its vectors	C. mbila
117	Kranz (1977)	Background information on virus diseases of tropical crops, their transmission and control	
127	Markham and Pinner (1983)	<i>C. triangula</i> and <i>C. mbila</i> transmission of corn stunt in the laboratory is compared	C. mbila C. storeyi (=triangula)
128	Markham <i>et al.</i> (1984a)	<i>C. mbila, C. triangula</i> and <i>Dalbulus maidis</i> are compared as maize disease vectors	C. mbila C. storeyi (=triangula)
129	Markham <i>et al.</i> (1984b)	<i>C. mbila, C. triangula, C. bipunctella zeae</i> and <i>C. chinai</i> are compared as vectors of maize streak in the laboratory. <i>C. chinai</i> is not a vector, although both <i>C. chinai</i> and <i>Dalbulus maidis</i> could be made vectors by injection of virus	C. bipunctata (=bipunctella zeae) C. chinai C. mbila C. storeyi (=triangula)
162	Nyvall (1979a)	Brief summary of maize streak	C. bipunctata (=zeae) C. mbila C. storeyi (=nicholsi)
163	Nyvall (1979b)	Brief summary of sugarcane streak	C. mbila
167	Pinner <i>et al.</i> (1988)	Maize streak strains and symptoms	C. mbila

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Refe auth	rence number, ors and date	Comments	<i>Cicadulina</i> species
198	Rossel and Thottappilly (1985b)	Distribution, symptoms, characterization, transmission and control of tropical crop viruses; including maize streak and maize mottle chlorotic stunt	C. bipunctata (= zeae) C. mbila C. storeyi (= triangula)
210	Sinha (1973)	Refers to maize streak passage through <i>C. mbila,</i> and corresponding transmission factors	C. mbila
215	Stanley <i>et al.</i> (1985)	Maize streak acquisition and transmission to different hosts by <i>C. mbila</i> and <i>C. triangula</i> are compared. <i>C. chinai</i> does not acquire the virus experimentally	C. chinai C. mbila C. storeyi (=triangula)
253	Thresh (1986b)	Briefly refers to <i>Cicadulina</i> transmission of maize streak	
Afric	a		
43	Dabrowski (1987a)	<i>C. ghaurii</i> biology, distribution and maize streak transmission	C. ghaurii
44	Dabrowski (1987b)	Species composition of <i>Cicadulina</i> from agroecological zones in Nigeria, Togo and Cameroon. <i>C. arachidis, C. ghaurii</i> and <i>C.</i> <i>similis</i> are vectors of maize streak	C. arachidis C. ghaurii C. similis C. storeyi (=triangula)
50	Dabrowski <i>et al</i> . (1985)	<i>Cicadulina</i> species abundance, proportion of active transmitters and sex ratio from sampling and trapping in Nigeria and Togo. Development rate and fecundity is compared for different host plants and climatic zones	C. arachidis C. mbila C. similis C. storeyi (=triangula)
75	Fennah (1959)	<i>C. latens</i> Fennah is described as a new East African species and vector of maize streak	C. latens
76	Ferriere (1930)	Includes report of <i>Anagrus cicadulinae</i> parasitizing eggs of <i>C. mbila</i>	C. mbila
92	Institut de Recherches Agronomiques et des Cultures Vivrieres (1985)	Vectors of maize viruses in Africa and the Mascarene Islands, and chemical control methods	C. mbila

Refe auth	rence number, ors and date	Comments	<i>Cicadulina</i> species
103	International Institute of Tropical Agriculture (1985a)	<i>C. triangula</i> is preferred for rearing to <i>C. mbila, C.</i> <i>arachidis</i> and <i>C. similis</i> . Examines the effect of temperature and climatic region on species composition in Nigeria and Togo, and suitable host plants for use in rearing <i>Cicadulina</i>	C. arachidis C. mbila C. similis C. storeyi (=triangula)
105	International Institute of Tropical Agriculture (1985c)	Same as reference number 103 above	C. arachidis C. mbila C. similis C. storeyi (=triangula)
111	International Institute of Tropical Agriculture (1989a)	Rearing <i>Cicadulina</i> and maize streak screening in Nigeria and Zimbabwe	C. mbila C. storeyi (=triangula)
190	Rose (1978)	Review of epidemiology of maize streak	
191	Rose (1983)	Distribution and economic importance of <i>Cicadulina</i> in Africa. Ecology of <i>C. mbila</i>	C. mbila
192	Rose (1987)	The effect of <i>Cicadulina</i> dispersal on maize streak epidemiology	
193	Rossel (1984)	Distribution and control of maize mottle chlorotic stunt in Africa	C. storeyi (=triangula)
195	Rossel <i>et al.</i> (1984)	Maize streak transmission efficiency of <i>C. triangula.</i> Streak incidence in West Africa, and cross-transmission between graminaceous hosts	C. storeyi (=triangula)
222	Storey (1930a)	<i>C. mbila</i> is recorded in Tanzania, Uganda and Kenya	C. mbila
Buru	ndi		
122	Malithano <i>et al.</i> (1987)	Rearing <i>Cicadulina</i> and maize streak screening	
Cam	eroon		
31	Cletus (1989)	Includes status of <i>C. mbila</i> in Cameroon	C. mbila
Egyp	t		
4	Ammar (1975)	Biology of <i>C. chinai</i> Ghauri in Egypt. <i>C. bipunctella zeae</i> and <i>C. chinai</i> may have a role in transmitting maize and sugarcane streak	C. bipunctata (=bipunctella_ zeae) C. chinai

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Reference number, authors and date		Comments	<i>Cicadulina</i> species
5	Ammar (1977)	Biology of <i>C. bipunctella zeae</i> China in Egypt	C. bipunctata (=bipunctella zeae)
6	Ammar (1978)	Morphology of immature stages of <i>C. chinai</i> Ghauri and <i>C. bipunctella zeae</i> China	C. bipunctata (=bipunctella zeae) C. chinai
7	Ammar (1983)	Includes sugarcane and maize streak distribution and transmission by <i>C. bipunctella</i> <i>zeae</i>	C. bipunctata (=bipunctella zeae)
8	Ammar <i>et al.</i> (1989)	<i>C. bipunctella zeae</i> transmits maize yellow stripe virus	C. bipunctata (=bipunctella zeae)
9	Ammar <i>et al.</i> (1980)	<i>C. bipunctella zeae</i> is the vector of sugarcane streak in Egypt and is expected to be the vector of maize streak	C. bipunctata (=bipunctella zeae)
10	Ammar <i>et al.</i> (1982)	Same as reference number 9 above	C. bipunctata (=bipunctella zeae)
11	Ammar <i>et al</i> . (1983)	Light trap and sweep net catches from rice in Egypt revealed <i>C. bipunctella zeae</i> to be very abundant	C. bipunctata (=bipunctella zeae)
86	Habib <i>et al</i> . (1980)	<i>C. bipunctella zeae</i> and <i>C. chinai</i> are reported from Egypt	C. bipunctata (=bipunctella zeae) C. chinai
87	Hamad <i>et al</i> . (1981)	Light trap catches of <i>C. bipunctella zeae</i> and <i>C. chinai</i> correlated with climatic conditions for one year	C. bipunctata (=bipunctella zeae) C. chinai
130	Matsumura (1908)	<i>Cicadula bipunctella</i> Matsumura is described as a new species	Cicadulina bipunctata (=Cicadula bipunctella)
141	Moustafa <i>et al.</i> (1985)	A chemical attractant for <i>C. chinai</i> is reported	C. chinai
Ethio	nia		
89	Heller and Linnavuori (1968)	<i>Cicadula bipunctella</i> Matsumura is synonymized with <i>Cicadulina bipunctata</i> (Melichar)	Cicadulina bipunctata (= Cicadula bipunctella)
140	Melichar (1904)	<i>Gnathodus bipunctatus</i> Melichar is described as a new species from Ethiopia	Cicadulina bipunctata (=Gnathodus bipunctatus)

Refe auth	rence number, ors and date	Comments	Cicadulina species
The	Gambia		
26	China (1928)	Balclutha mbila Naude, the vector of maize streak, is renamed Cicadulina mbila (Naude). Cicadulina Haupt is renamed Cicadulella. C. similis China and C. arachidis China are new species	C. arachidis C. mbila (=Balclutha mbila) C. similis
Ivor	y Coast		
74	Fauquet and Thouvenel (1980)	Maize streak is included in a guide to plant virus diseases of Ivory Coast	
Keny	ya 🛛		
25	China (1926)	<i>Cicadulina</i> and <i>Balclutha</i> are distinguished. <i>C. zeae</i> China is designated a new species	C. bipunctata (=zeae)
78	Ghauri (1964)	<i>C. chinai</i> Ghauri is described as a new species, and its vector status as uncertain	C. chinai
118	Kulkarni (1973)	<i>C. mbila</i> does not transmit maize stripe or maize line viruses	C. mbila
158	Nichols <i>et al</i> . (1950)	Maize streak resistance breeding with <i>Cicadulina</i> , and the problem of active and inactive vector races	
172	Rasaiah (1986a)	Includes use of <i>C. mbila</i> in maize streak resistance breeding	C. mbila
173	Rasaiah (1986b)	Includes use of <i>C. mbila</i> in maize streak resistance breeding	C. mbila
245	Storey (1961)	<i>Cicadulina</i> transmission of maize streak	
246	Storey and Howland (1960)	Maize streak resistance genetics study using <i>C. mbila</i>	C. mbila
247	Storey and Howland (1961)	Maize streak resistance genetics study using <i>Cicadulina</i>	
248	Storey <i>et al</i> . (1964)	Vectors of maize streak, and maize resistance studies	C. bipunctata (=bipunctella zeae) C. latens C. mbila C. storeyi
250	Theuri and Njuguna (1988)	Maize streak in Kenya highlands	C. mbila

Reference number, authors and date		Comments	<i>Cicadulina</i> species
Moz	ambigue .		
83	Gouveia (1973)	<i>C. niger</i> transmits maize streak in the laboratory	C. niger
161	Nunes <i>et al</i> . (1986)	The importance of maize streak in Mozambique	C. mbila C. parazeae C. storeyi (=triangula)
Nige	ria		
(i) G	eneral topics		
2	Akingbohungbe (1983)	Includes biology of Nigerian leafhopper vectors	
46	Dabrowski (1987d)	<i>C. ghaurii</i> Dabrowski is described as a new species and vector of maize streak	C. ghaurii
70	Fajemisin <i>et al.</i> (1976)	Epiphytotic of maize streak in Nigeria	
71	Fajemisin <i>et al.</i> (1987)	Weather factors determining maize streak epidemics	C. mbila C. storeyi (=triangula)
97	International Institute of Tropical Agriculture (1978)	<i>C. triangula</i> efficiently transmits maize streak	C. storeyi (=triangula)
99	International Institute of Tropical Agriculture (1979b)	<i>C. triangula</i> transmits maize mottle chlorotic stunt	C. storeyi (=triangula)
101	International Institute of Tropical Agriculture (1981b)	<i>C. triangula</i> transmits maize mottle chlorotic stunt	C. storeyi (=triangula)
102	International Institute of Tropical Agriculture (1982)	Maize mottle chlorotic stunt virus is described, and <i>C. triangula</i> is an efficient vector	C. storeyi (=triangula)
150	National Cereals Research Institute (1977)	Suction trap catches give peak flight times for <i>Cicadulina</i>	C. latens C. mbila C. storeyi (=triangula)
151	National Cereals Research Institute (1978)	A survey of maize pests in Nigeria	
152	National Cereals Research Institute (1979a)	<i>C. latens, C. mbila</i> and <i>C. triangula</i> are identified as vectors of maize streak in Nigeria; and two morphs with differing transmission efficiencies are distinguised	C. latens C. mbila C. storeyi (=triangula)

Reference number, authors and date		Comments	<i>Cicadulina</i> species
153	National Cereals Research Institute (1979b)	<i>C. mbila</i> and <i>C. triangula</i> are identified as vectors of maize streak in Nigeria	C. mbila C. storeyi (=triangula)
154	National Cereals Research Institute (1980)	Effect of planting date on incidence of viruses transmitted by <i>C. mbila</i> and <i>C. triangula</i> . Virus host plants	C. mbila C. storeyi (=triangula)
164	Okoth and Dabrowski (1987)	Population density, species composition and infectivity with maize streak virus of <i>Cicadulina</i> ssp. from ecological zones in Nigeria	C. arachidis C. mbila C. similis C. storeyi (=triangula)
165	Okoth <i>et al.</i> (1987)	Parameters affecting maize streak transmission	C. mbila C. storeyi (=triangula)
166	Okoth <i>et al.</i> (1987)	Biology of <i>Cicadulina</i> spp. from climatic zones in Nigeria, and suitability for use in maize streak screening	C. mbila C. storeyi (=triangula)
194	Rossel and Ferguson (1980)	Rediscovery of maize mottle virus transmitted by <i>Cicadulina</i>	
196	Rossel and Thottappilly (1983)	Maize chlorotic stunt aetiology and transmission by <i>C. triangula</i>	C. storeyi (=triangula)
197	Rossel and Thottappilly (1985a)	Vein enation and leaf malformation appears to be caused by feeding damage	C. storeyi (=triangula)
199	Rossel <i>et al.</i> (1987)	Transmission tests for maize streak isolates from different grass hosts using <i>C. triangula</i>	C. storeyi (=triangula)
212	Soto (1978)	Laboratory studies prove <i>C.</i> <i>triangula</i> can transmit maize streak	C. storeyi (=triangula)
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(ii) Rearing of *Cicadulina* leafhoppers and their use in screening for disease resistance

3	Alam (1983)	Mass production of leafhoppers	C. storeyi (=triangula)
16	Bjarnason (1986)	Rearing of <i>Cicadulina</i> and use in maize streak resistance screening	
23	Centro Internacional de Majoramiento de Maiz Y Trigo (1985)	Includes use of <i>Cicadulina</i> for maize streak resistance screening	
33	Connolly (1986)	Includes brief description of <i>Cicadulina</i> rearing at IITA	

Refe auth	erence number, ors and date	Comments	<i>Cicadulina</i> species
37	Dabrowski (1983)	Identifying and collecting <i>Cicadulina</i> for maize streak screening	
38	Dabrowski (1984a)	<i>Cicadulina</i> rearing and use in maize streak screening	C. storeyi (=triangula)
39	Dabrowski (1984b)	Handling Cicadulina colonies	C. storeyi (=triangula)
40	Dabrowski (1984c)	Rearing Cicadulina colonies	C. storeyi (=triangula)
41	Dabrowski (1984d)	Releasing <i>Cicadulina</i> for maize streak virus resistance screening	C. storeyi (=triangula)
42	Dabrowski (1985)	Biology and behaviour of <i>C. triangula</i> in relation to maize streak resistance screening	C. storeyi (=triangula)
45	Dabrowski (1987c)	Parameters affecting suitability of <i>Cicadulina</i> for maize streak resistance screening; including distribution pattern, effects of temperature and humidity on biology and fecundity, host preference, and transmission efficiency	
47	Dabrowski (1988)	Effect of release of viruliferous <i>C. triangula</i> on wild <i>Cicadulina</i> populations	C. storeyi (=triangula)
48	Dabrowski (1989)	Procedures and techniques for rearing <i>Cicadulina</i>	
49	Dabrowski <i>et al.</i> (1985)	Screening for maize mottle chlorotic stunt transmitted by <i>C. triangula</i>	C. storeyi (=triangula)
63	Efron <i>et al</i> . (1989)	Includes <i>Cicadulina</i> rearing and use in maize streak resistance screening	C. storeyi (=triangula)
69	Fajemisin (1986)	Includes maize streak resistance screening at IITA and control measures	
72	Fajemisin <i>et al</i> . (1985)	Rearing of <i>C. triangula</i> and use in maize streak screening	C. storeyi (=triangula)
73	Fajemisin <i>et al</i> . (1984)	As for reference number 72 above	C. storeyi (=triangula)
93	International Institute of Tropical Agriculture (1976)	Mass production of <i>Cicadulina</i> and maize streak screening	C. mbila C. storeyi (=triangula)

Refe auth	erence number, ors and date	Comments	Cicadulina species
94	International Institute of Tropical Agriculture (1977a)	Mass production of <i>Cicadulina</i> and maize streak screening	C. mbila C. storeyi (=triangula)
95	International Institute of Tropical Agriculture (1977b)	As for reference number 94 above	C. mbila C. storeyi (=triangula)
96	International Institute of Tropical Agriculture (1977c)	Screening for maize streak resistance	
98	International Institute of Tropical Agriculture (1979a)	Field infestation using <i>C.</i> <i>triangula</i> is described	C. storeyi (=triangula)
100	International Institute of Tropical Agriculture (1981a)	Efficiency of two leafhopper infestation methods are compared	
104	International Institute of Tropical Agriculture (1985b)	Improvements to rearing and field infestation	C. storeyi (=triangula)
106	International Institute of Tropical Agriculture (1986)	Rearing of <i>Cicadulina</i> , biogeography and maize streak transmission efficiency	C. arachidis C. ghaurii C. mbila C. similis C. storeyi (=triangula)
107	International Institute of Tropical Agriculture (1987a)	<i>Cicadulina</i> rearing and maize streak screening	
108	International Institute of Tropical Agriculture (1987b)	Briefly describes the use of <i>Cicadulina</i> in maize streak screening	C. storeyi (=triangula)
110	International Institute of Tropical Agriculture (1987d)	Biological control of aphids in leafhopper cages	

Refe autho	rence number, ors and date	Comments	<i>Cicadulina</i> species
112	International Institute of Tropical Agriculture (1989b)	Mass rearing of <i>Cicadulina,</i> and species composition in different regions	C. mbila C. storeyi (=triangula)
120	Leuschner <i>et al</i> . (1980)	An improved method of field infestation for use in maize streak resistance screening	
213	Soto <i>et al.</i> (1982)	Methods for vector production and large scale maize screening	C. mbila C. storeyi (=triangula)
Sout	h Africa		
62	Drinkwater <i>et al.</i> (1979)	Soil applied systemic insecticides to control <i>C. mbila</i>	C. mbila
64	Engelbrecht (1980)	<i>C. mbila</i> can transmit maize rough dwarf virus	C. mbila
65	Engelbrecht (1974)	Potential threat of maize streak in South Africa and control measures	C. bipunctata (=zeae) C. mbila C. storeyi
81	Gorter (1951)	Prevention of maize streak, primarily by cultural methods	C. mbila
82	Gorter (1953)	Spread and control of maize streak	C. mbila
139	McClean (1934)	<i>C. mbila</i> is the vector of sugarcane streak, which is distinguished from maize streak. Cultural control is described	C. mbila
155	Naude (1924)	<i>Balclutha mbila</i> Naude is described as a new species	C. mbila (=Balclutha mbila)
156	Naude (1926)	<i>Balclutha mbila</i> Naude is referred to as a new species	C. mbila (=Balclutha mbila)
203	Rybicki (1988)	Maize streak epidemiology in South Africa	C. mbila
216	Storey (1924)	<i>Balclutha mbila</i> transmits maize streak	C. mbila (=Balclutha mbila)
217	Storey (1925a)	Sugarcane streak transmission by <i>Balclutha mbila,</i> epidemiology and control	C. mbila (=Balclutha mbila)
218	Storey (1925b)	The vector of maize streak is <i>Balclutha mbila</i> , and the virus is persistent in the vector	C. mbila (=Balclutha mbila)

Reference number, authors and date		Comments	Cicadulina species
219	Storey (1926a)	Cross-transmission of maize streak using <i>Balclutha mbila</i> between maize, sugarcane, <i>Eleusine indica</i> and <i>Digitaria</i> <i>horizontalis</i>	C. mbila (=Balclutha mbila)
220	Storey (1926b)	Maize streak acquisition, incubation, transmission and virus retention in <i>Balclutha mbila</i> . Vector inoculation experiments	C. mbila (=Balclutha mbila)
221	Storey (1928)	Transmission studies for maize streak and <i>C. mbila</i>	C. mbila
249	Storey and McClean (1930)	Transmission of maize streak between varieties of maize, sugarcane and grasses; and symptom expression. The effect of repeated passage through, and persistence of, virus in <i>C. mbila</i>	C. mbila
254	Van Der Watt (1979)	Briefly describes infection techniques for maize streak	
255	Van Rensburg (1979a)	Ecology and rearing of <i>Cicadulina</i> spp.	C. niger C. parazeae C. storeyi
256	Van Rensburg (1979b)	A new field infection technique using <i>C. mbila</i>	C. mbila
257	Van Rensburg (1983a)	Laboratory study on the effect of temperature on <i>C. mbila</i>	C. mbila
258	Van Rensburg (1983b)	Laboratory study on <i>C. mbila</i> host preference and effects of host plant on fecundity and development rate	C. mbila
259	Van Rensburg (1983c)	Taxonomy, biogeography and synonyms of <i>Cicadulina</i> spp. from South Africa	C. latens C. mbila C. niger C. parazeae C. similis C. storeyi (=triangula)
260	Van Rensburg and Giliomee (1989)	Comparative efficacy of pre- and post-emergent applications of insecticides against <i>C. mbila</i> and stalk borers	C. mbila
261	Van Rensburg and Walters (1977)	A method for transporting <i>C. mbila</i> over long distances	C. mbila
262	Van Rensburg (1988)	Use of cloethocarb to control <i>C. mbila</i>	C. mbila

Refer autho	rence number, ors and date	Comments	<i>Cicadulina</i> species
263	Van Rensburg and Walters (1978)	Use of soil applied systemic insecticides to control <i>C. mbila</i>	C. mbila
265	Von Wechmar and Milne (1983)	Includes use of ELISA for detecting maize streak in single leafhoppers	C. mbila
Tanz	ania		
12	Ampofo (1988)	Assessments of on-farm losses due to insect pests	
27	China (1936)	<i>C. storeyi</i> China is described as a new species	C. storeyi
223	Storey (1930b)	Individuals of <i>C. mbila</i> unable to acquire or transmit maize streak are reported	C. mbila
224	Storey (1931)	Sex-linked inheritance by <i>C. mbila</i> of the ability to transmit maize streak	C. mbila
225	Storey (1932a)	Breeding of active races of <i>C. mbila</i> for maize streak transmission	C. mbila
226	Storey (1932b)	Filtration of maize streak, and testing of extracts by feeding to <i>C. mbila</i>	C. mbila
227	Storey (1932c)	Inheritance of the ability to transmit a plant virus	C. mbila
228	Storey (1933a)	Mechanisms of virus transmission; passage of maize streak through active and inactive races of <i>C. mbila</i>	C. mbila
229	Storey (1933b)	Passage of maize streak through active and inactive races of <i>C. mbila</i> . A new vector inoculation technique, and an attempt to breed an active race of <i>C. zeae</i>	<i>C. bipunctata (=zeae) C. mbila</i>
230	Storey (1934a)	Studies on replication of maize streak in <i>C. mbila</i> , and proportions of active to inactive races in vector populations	C. mbila
231	Storey (1934b)	Studies on passage of maize streak through active and inactive races of <i>C. mbila</i> and <i>C. zeae</i>	<i>C. bipunctata (= zeae) C. mbila</i>
232	Storey (1934c)	Photodynamic effect of methylene blue on maize streak	C. mbila
233	Storey (1935)	The role of stylets and saliva in virus transmission	C. mbila

Refe auth	rence number, ors and date	Comments	<i>Cicadulina</i> species
234	Storey (1936a)	Difficulties in breeding <i>C.</i> <i>zeae</i> China populations were found to be due to presence of a new species; <i>C. nicholsi</i> Storey. A new virus transmitted by active <i>Cicadulina</i> races is reported	<i>C. bipunctata (= zeae) C. storeyi (= nicholsi)</i>
235	Storey (1936b)	Includes description of graminaceous hosts of streak and corresponding vectors, and a new <i>Cicadulina</i> transmitted maize virus	
236	Storey (1936c)	Epidemiology and cultural control of maize streak in East Africa, with vectors given as <i>C. mbila, C. storeyi</i> and <i>C.</i> <i>zeae</i>	C. bipunctata (=zeae) C. mbila C. storeyi
237	Storey (1937a)	Transmission of a new maize virus (maize mottle virus)	C. mbila C. parazeae C. storeyi
238	Storey (1937b)	Variation in transmission efficiency and persistence of virus in vector races of <i>C.</i> <i>mbila</i>	C. mbila
239	Storey (1938a)	The role of the puncture in maize streak transmission, and the importance of feeding site in virus acquisition	C. mbila
240	Storey (1938b)	Reports the presence of a fluid secreted on to the wings of <i>C. mbila</i> and scraped off as a powder	C. mbila
241	Storey (1939a)	The role of saliva in virus transmission	C. mbila
242	Storey (1939b)	Factors determining transmission of virus in feeding, and variation in ability to cause infection	C. mbila
243	Storey (1939c)	Review of insect transmission of plant viruses includes <i>C.</i> <i>mbila</i> transmission of maize streak	C. mbila
244	Storey (1948)	Maize streak is included in a history of plant disease research at Amani Research Station	
Ugar	Ida		
20	Bock and Majisu (1971)	Virus affecting finger millet at Serere is transmitted by <i>C.</i> <i>mbila</i> and believed to be a strain of maize streak	C. mbila

Refe auth	rence number, ors and date	Comments	<i>Cicadulina</i> species
Zam	bia		
170	Rao (1981)	Control of maize diseases in Zambia, includes screening for maize streak	C. mbila
171	Rao and Ristanovic (1986)	Control of maize diseases in Zambia, includes screening for maize streak	C. mbila
Zimł	abwe		
(i) G	eneral topics		
25	Centro Internacional de Majoramiento de Maiz Y Trigo (1988)	Describes setting up of <i>C. mbila</i> rearing facilities at Harare	C. mbila
59	Department of Research and Specialist Services (1984)	The use of <i>C. mbila</i> in screening for maize streak resistance; yield reduction in wheat due to maize streak; and cultural control methods	C. mbila
77	Ghauri (1961)	<i>C. parazeae</i> Ghauri is described as a new species	C. parazeae
109	International Institute of Tropical Agriculture (1987c)	Rearing <i>C. mbila</i> and maize streak screening at Harare	C. mbila
114	Johnston (1983)	Increasing importance of maize streak and its vectors in Zimbabwe	<i>C. mbila C. parazeae C. storeyi</i>
125	Marandu (1987)	<i>Cicadulina</i> rearing facilities at Harare	C. mbila
178	Rhodesia Ministry of Agriculture (1971)	Bionomics, injuriousness and control of <i>Cicadulina</i>	<i>C. mbila C. parazeae C. storeyi</i>
181	Rose (1962)	Distribution of <i>C. mbila, C. parazeae, C. storeyi</i> and an unidentified <i>Cicadulina</i> sp., which are vectors of maize streak in Zimbabwe	<i>C. mbila C. parazeae C. storeyi</i>
182	Rose (1972)	Times and sizes of <i>Cicadulina</i> dispersal	C. mbila C. parazeae C. storeyi
183	Rose (1973a)	Dispersal and quality in <i>Cicadulina</i> populations	C. mbila C. parazeae C. storeyi
184	Rose (1973b)	Laboratory study on the effects of temperature on the biology of <i>Cicadulina</i>	<i>C. mbila C. parazeae C. storeyi</i>

Reference number, authors and date		Comments	<i>Cicadulina</i> species
185	Rose (1973c)	Field studies on <i>Cicadulina</i> spp.; includes dispersal, food plants, development rate, effect of temperature, population dynamics and sex ratio	<i>C. mbila C. parazeae C. storeyi</i>
186	Rose (1973d)	Distances flown by <i>Cicadulina</i> and maize streak distribution	C. mbila C. parazeae C. storeyi
188	Rose (1974)	Effect of population densities of <i>Cicadulina</i> spp. on maize streak epidemiology of irrigated crops, and chemical control measures	<i>C. mbila C. parazeae C. storeyi</i>
200	Rothwell (1979)	Epidemiology of maize streak in Zimbabwe	
211	Sithole (1989)	Includes economic importance of <i>Cicadulina</i> in Zimbabwe	C. mbila C. parazeae C. storeyi
251	Thresh (1983)	Includes <i>Cicadulina</i> transmission of maize streak in Zimbabwe	
252	Thresh (1986a)	Forecasting maize streak epidemics in Zimbabwe	
(ii) C	ontrol methods		
58	Department of Research and Specialist Services (1977)	Insecticide trials for <i>Cicadulina</i> vector control	
60	Department of Research and Specialist Services (1987)	Comparison of insecticides and their modes of application to control <i>C.</i> <i>mbila</i>	C. mbila
61	Douse (1982)	Maize streak and its control	
142	Muchena <i>et al</i> . (1987)	<i>C. mbila</i> is effectively controlled with carbofuran	C. mbila
143	Mzira (1984a)	The effects on yield and disease spread, of chemical control of <i>C. mbila</i> ; and the effect of time of infection on yield	C. mbila
144	Mzira (1984b)	Chemical control of <i>Cicadulina</i>	C. mbila
145	Mzira (1984c)	Cultural control of maize streak	C. mbila
187	Rose (1973e)	Management of <i>Cicadulina</i> to reduce maize streak	<i>C. mbila C. parazeae C. storeyi</i>

Reference number, authors and date		Comments	<i>Cicadulina</i> species	
North America				
51	Damsteegt (1978)	Experimental host plants for <i>C. mbila</i> and maize streak	C. mbila	
52	Damsteegt (1980)	American maize varieties are tested against maize streak transmitted by <i>C. mbila</i>	C. mbila	
53	Damsteegt (1983)	<i>C. mbila</i> transmission studies to determine maize streak host range and maize germplasm vulnerability to it	C. mbila	
84	Graham (1979)	Testing of transmission of maize streak by leafhopper species in the United States	C. mbila	
157	Nault and Madden (1988)	<i>C. mbila</i> is not a vector of maize chlorotic dwarf virus	C. mbila	

Asia

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India	L .		
28	Choudhary <i>et al</i> . (1979)	Wheat varieties are screened against maize streak transmitted by <i>C. mbila</i> in Rajasthan	C. mbila
29	Choudhary <i>et al.</i> (1980)	Pearlmillet lines are screened against the pearlmillet strain of maize streak transmitted by <i>C. mbila</i> in Rajasthan	C. mbila
30	Choudhary <i>et al.</i> (1976)	<i>C. mbila</i> transmission of maize streak is recorded in Rajasthan	C. mbila
55	David and Alexander (1984)	Future research on <i>C. mbila</i> (the vector of sugarcane streak) in Coimbatore	C. mbila
113	Jackson <i>et al.</i> (1981)	<i>C. bipunctata</i> and <i>C. chinai</i> transmit a rhabdovirus of ragi (<i>Eleusine coracana</i>) in India	C. bipunctata C. chinai
119	Kulkarni <i>et al.</i> (1980)	<i>C. mbila</i> transmits wheat streak in Karnataka	C. mbila
121	Mali <i>et al</i> . (1978)	Wheat streak in Maharashtra is transmitted by <i>Cicadulina</i>	
146	Nagaich and Sinha (1974)	<i>C. mbila</i> is the vector of eastern wheat striate virus	C. mbila
147	Nagaraju <i>et al.</i> (1982)	<i>C. chinai</i> is the vector of ragi (<i>Eleusine coracana</i>) streak virus in Karnataka	C. chinai

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Reference number, authors and date		Comments	<i>Cicadulina</i> species	
148	Nagaraju and Viswanath (1981)	The relationship of <i>C. chinai</i> to ragi (<i>Eleusine coracana</i>) streak virus in Karnataka	C. chinai	
149	Nagpal <i>et al.</i> (1977)	Occurrence of <i>C. mbila</i> transmitted wheat streak in Madhya Pradesh	C. mbila	
168	Rajagopal and Channabasavanna (1975)	The importance of <i>C.</i> <i>bipunctata</i> as a maize pest in Karnataka	C. bipunctata	
169	Rajagopal and Channabasavanna (1977)	Study on chemical control of maize pests includes <i>C. bipunctata bipunctata</i>	C. bipunctata (=bipunctata bipunctata)	
174	Raychaudhuri <i>et</i> <i>al</i> . (1976)	Includes <i>C. mbila</i> transmission of maize streak in India	C. mbila	
175	Reddy (1975)	Use of miniplant tubes for virus transmission studies in Karnataka	C. bipunctata (=bipunctella zeae) C. chinai	
202	Ruppel (1969)	<i>C. chinai</i> and <i>C. bipunctella zeae</i> are recorded on ragi (<i>Eleusine coracana</i>) from India	C. bipunctata (=bipunctella zeae) C. chinai	
204	Sachan (1982)	Effect of fertilizer on <i>Cicadulina</i> incidence on <i>Pennisetum purpurem</i>		
205	Seth <i>et al</i> . (1971)	Streak of bajra (<i>Pennisetum</i> <i>typhoides</i>) in India is identified in New Delhi as maize streak transmitted by <i>C</i> . <i>mbila</i>	C. mbila	
206	Seth <i>et al.</i> (1972a)	Bajra (<i>Pennisetum typhoides</i>) streak in India is identified as a new strain of maize streak from transmission tests using <i>C. mbila</i>	C. mbila	
207	Seth <i>et al</i> . (1972b)	Effects of <i>C. mbila</i> transmitted maize streak on Indian wheat varieties	C. mbila	
208	Seth and Singh (1976)	<i>C. mbila</i> transmits maize streak in India	C. mbila	
209	Sharma and Payak (1983)	<i>C. mbila</i> transmits maize vein enation in Darjeeling. Bajra (<i>Pennisetum typhoides</i>) streak experimental transmission to maize occurred with <i>C.</i> <i>latens, C. mbila, C.</i> <i>bipunctella zeae, C. parazeae</i> and <i>C. storeyi</i>	C. bipunctata (=bipunctella zeae) C. latens C. mbila C. parazeae C. storeyi	

Reference number, authors and date		Comments	<i>Cicadulina</i> species	
214	Srivastava and Bisaria (1982)	<i>Cicadulina</i> biology and susceptibility of rice varieties to its attack		
Phili	innines			
1	Agati and Calica (1949)	Aetiology of leaf-gall of rice and corn		
68	Exconde (1983)	<i>C. bipunctella zeae</i> transmits maize leaf-gall	C. bipunctata (=bipunctella zeae	
124	Maramorosch <i>et al.</i> (1961)	<i>C. bipunctella</i> causes leaf- galls on maize and rice	C. bipunctata (=bipunctella)	
Aust	ralia			
85	Grylls (1979)	Includes vector status of <i>C. bimaculata</i> and <i>C. bipunctata</i> in Australia. <i>C. bipunctata</i> is recorded as vector of maize streak and maize wallaby ear disease	<i>C. bimaculata C. bipunctata</i>	
116	Kitching <i>et al</i> . (1973)	The synonomy <i>C. bipunctella</i> Matsumura <i>= C. bimaculata</i> (Evans) is rejected. Both species are present in Australia	<i>C. bimaculata C. bipunctata (= bipunctella)</i>	
India	n Ocean Islands			
13	Autrey (1983)	In glasshouse tests <i>C. mbila</i> but not <i>C. triangula</i> transmits maize streak in Mauritius	C. mbila C. storeyi (= triangula)	
14	Autrey and Ricaud (1983)	Comparison of epidemiology and incidence of maize streak and maize mosaic in Mauritius		
57	Delpeuch <i>et al.</i> (1986)	<i>C. mbila</i> is proved as the vector of maize streak in Reunion	C. mbila	
66	Etienne and Roura (1977)	<i>C. mbila</i> is the vector of maize streak in Mauritius and Reunion	C. mbila	
126	Marchand and Hainzelin (1986)	Rearing <i>C. mbila,</i> field infestation and screening for maize streak resistance	C. mbila	
131	Mauritius Sugar Industry Research Institute (1973)	First record of <i>C. mbila</i> in Mauritius. Maize streak distribution is given	C. mbila	

Reference number, authors and date		Comments	Cicadulina species	
132	Mauritius Sugar Industry Research Institute (1974)	Comparison of development and host preference of <i>C.</i> <i>mbila</i> on maize and sugarcane in both field and laboratory studies	C. mbila	
133	Mauritius Sugar Industry Research Institute (1975a)	Transmission tests for streak between sugarcane, maize and grasses using <i>C. mbila</i> and <i>C. triangula</i> . <i>C. triangula</i> is newly reported in Mauritius. Three virus strains are present, and their distribution is given	C. mbila C. storeyi (=triangula)	
134	Mauritius Sugar Industry Research Institute (1975b)	Transmission tests for three streak virus strains using <i>C. mbila</i>	C. mbila	
135	Mauritius Sugar Industry Research Institute (1976)	<i>C. mbila</i> is tested for transmission of grass streak virus isolates to maize. Streak distribution is given, and crop loss estimated	C. mbila	
136	Mauritius Sugar Industry Research Institute (1977)	<i>C. mbila</i> is used for cross- transmission of streak virus isolates to establish serological relationships to the maize strain	C. mbila	
137	Mauritius Sugar Industry Research Institute (1978)	<i>C. mbila</i> rarely transmits streak from <i>Cenchrus</i> grass to sugarcane	C. mbila	
138	Mauritius Sugar Industry Research Institute (1981)	Maize streak is the most important maize disease in Rodrigues, and distribution is given. New grass hosts are identified, and maize varieties screened	C. mbila	
176	Reynaud (1988)	Includes <i>C. mbila</i> incidence on two maize varieties, and pathogen control in rearing	C. mbila	
177	Reynaud <i>et al.</i> (1987)	Includes use of <i>C. mbila</i> in screening for maize streak resistance	C. mbila	
179	Ricaud and Felix (1976)	<i>C. mbila</i> is the vector of maize streak in Mauritius, where the disease is increasing in importance	C. mbila	
180	Ricaud and Felix (1979)	As for reference number 179 above	C. mbila	

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Table of references by major subject and period of publication

