Changes to Compendia distribution data: the distribution tables, maps and references in datasheets have been restructured to handle the data better for updating and align with a geographic standard. Further details are available on the About page.

PRA Tool for plant commodity and pest-initiated Pest Risk Analysis. Available as an addition to the CPC.

Horizon Scanning Tool for prioritizing invasive species threats.

Next: Dysmicoccus brevipes (pineapple mealybug) >>
Return to Search Results

Datasheet

Dysmicoccus neobrevipes (grey pineapple mealybug)

Index

Summary

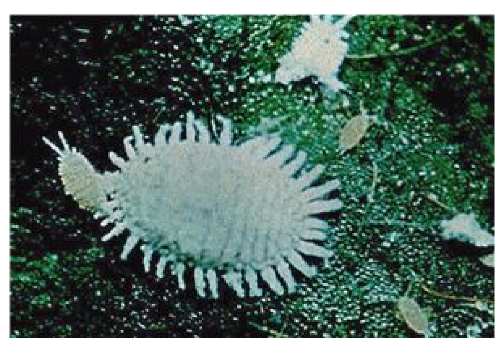
Last modified
22 November 2019

Datasheet Type(s)
Pest
Natural Enemy
Vector of Plant Pest

Preferred Scientific Name
Dysmicoccus neobrevipes

Preferred Common Name
grey pineapple mealybug

Taxonomic Tree
Domain: Eukaryota
  Kingdom: Metazoa
    Phylum: Arthropoda



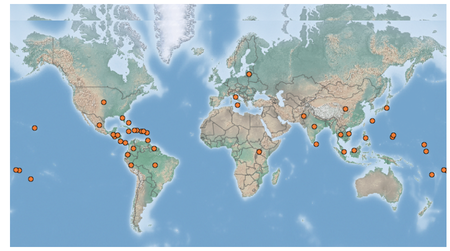
More information

Subphylum: Uniramia
Class: Insecta

Host Plants and Other Plants Affected

Acacia (wattles)
Acacia farnesiana (huisache)
Acacia koa (koa)
Agave
Agave sisalana (sisal hemp)

More...



More information

Don't need the entire report?

Generate a print friendly version containing only the sections you need.

Generate report

Pictures

Top of page

Picture	Title	Caption	Copyright
	D. neobrevipes on pineapple	Heavy colonization of mealybugs can be seen on base of fruits, leaves and crowns.	U.B. Gunasinghe

Identity

Top of page

Preferred Scientific Name

Dysmicoccus neobrevipes Beardsley

Preferred Common Name

grey pineapple mealybug

International Common Names

English: annona mealybug; gray pineapple mealybug

EPPO code

DYSMNE (Dysmicoccus neobrevipes)

Taxonomic Tree

Top of page

Domain: Eukaryota
Kingdom: Metazoa
Phylum: Arthropoda
Subphylum: Uniramia
Class: Insecta
Order: Hemiptera
Suborder: Sternorrhyncha
Unknown: Coccoidea
Family: Pseudococcidae
Genus: Dysmicoccus
Species: Dysmicoccus neobrevipes

Notes on Taxonomy and Nomenclature

Top of page

All members of what we now consider the pineapple mealybug complex were originally referred to as a single species called *Pseudococcus brevipes* (Cockerell) (Carter, 1933), which was later renamed *Dysmicoccus brevipes*. *D. neobrevipes* was found to have morphological differences from *D. brevipes* and was therefore described as a distinct species by Beardsley in 1959 from samples collected in Hawaii (Beardsley, 1992). However, this species had been recognised earlier by Ito (1938), who found two forms of pineapple mealybug in Hawaii, a pink form (*D. brevipes*) and a grey form (subsequently described as *D. neobrevipes*).

Description

Top of page

Live adult females are oval, grey, and coated with white mealy wax which forms small tufts (Beardsley 1959). They are 1.5 mm long and 1.0 mm wide. Authoritative identification requires slide-mounted adult females under a compound light microscope. See Beardsley (1959) for a detailed description of the *D. neobrevipes*.

Summary of Invasiveness

Top of page

Dysmicoccus neobrevipes is a mealybug with a pantropical distribution. It is an economically important pest that can feed on and damage dozens of hosts, principally pineapple and the banana *Musa* × *paradisiaca*. The main damage caused by *D. neobrevipes* is due to its role as a vector of mealybug wilt (Plant Health Australia, 2013). Qin et al. (2010) considered it a dangerous alien species with a high risk of invasion in China. Although *D. neobrevipes* can colonize without the help of associated caretaker ants, most commonly *Pheidole* and *Solenopsis*, the ants' presence can help them to invade new areas by providing shelter and protecting them from natural enemies and adverse weather conditions.

Distribution

Top of page

D. neobrevipes is thought to be native to tropical America, but now has a pantropical distribution, with a small number of records from subtropical or Mediterranean localities (Kessing and Mau, 1992). It has been found in all zoogeographic regions on a wide diversity of hosts, but has a smaller geographical range than the related pink form, *D. brevipes* (Jahn et al., 2003). *D. neobrevipes* is known to have been introduced to China, Japan, Sri Lanka and Lithuania.

Distribution Table

Top of page

The distribution in this summary table is based on all the information available. When several references are cited, they may give conflicting information on the status. Further details may be available for individual references in the Distribution Table Details section which can be selected by going to Generate Report.

Last updated: 10 Jan 2020

Continent/Country/Region	Distribution	Last Reported	Origin	First Reported	Invasive	Reference	Notes
Africa							
Uganda	Present					Bua et al. (2013)	
Asia							
China	Present		Introduced			He YanBiao et al. (2014)	
India	Present					García Morales et al. (2016)	
Japan	Present		Introduced			Tanaka and Uesato (2012); García Morales et al. (2016)	
-Ryukyu Islands	Present					Tanaka and Uesato (2012)	
Malaysia	Present					García Morales et al. (2016)	
Pakistan	Present					García Morales et al. (2016)	
Philippines	Present					Aguilar et al. (2014); García Morales et al. (2016)	
Singapore	Present					García Morales et al. (2016)	
Sri Lanka	Present		Introduced			Sirisena et al. (2013)	
Thailand	Present, Widespread					Sarkar et al. (2014); García Morales et al. (2016)	
Vietnam	Present					García Morales et al. (2016)	
Europe							
Italy	Present					Tranfaglia (1983); García Morales et al. (2016)	
-Sicily	Present					García Morales et al. (2016)	
Lithuania	Present		Introduced			Malumphy et al. (2008)	
North America							
Antigua and Barbuda	Present					García Morales et al. (2016)	
Bahamas	Present					García Morales et al. (2016)	
Costa Rica	Present					García Morales et al. (2016)	
Dominican Republic	Present					García Morales et al. (2016)	
El Salvador	Present					García Morales et al. (2016)	
Guatemala	Present					García Morales et al. (2016)	
Haiti	Present					García Morales et al. (2016)	
Honduras	Present					García Morales et al. (2016)	
Jamaica	Present					Beardsley (1975); García Morales et al. (2016)	
Mexico	Present					BEARDSLEY (1965); García Morales et al. (2016)	
Panama	Present					García Morales et al. (2016)	
Puerto Rico	Present					García Morales et al. (2016)	
Trinidad and Tobago	Present					García Morales et al. (2016)	
U.S. Virgin Islands	Present					García Morales et al. (2016)	
United States	Present					CABI (Undated)	Present based on regional distribution.

Continent/Country/Region	Distribution	Last Reported	Origin	First Reported	Invasive	Reference	Notes
-Florida	Present					United States Department of Agriculture (1979); García Morales et al. (2016)	
-Hawaii	Present					Hu et al. (2009); García Morales et al. (2016)	
Oceania							
American Samoa	Present					García Morales et al. (2016)	
Cook Islands	Present					García Morales et al. (2016)	
Fiji	Present					BEARDSLEY (1965); García Morales et al. (2016)	
Guam	Present					BEARDSLEY (1965)	
Kiribati	Present					BEARDSLEY (1965); García Morales et al. (2016)	
Marshall Islands	Present					García Morales et al. (2016)	
Northern Mariana Islands	Present					García Morales et al. (2016)	
Samoa	Present					García Morales et al. (2016)	
South America							
Brazil	Present					García Morales et al. (2016)	
Colombia	Present					García Morales et al. (2016)	
Ecuador	Present					García Morales et al. (2016)	
Peru	Present					García Morales et al. (2016)	
Suriname	Present					García Morales et al. (2016)	

History of Introduction and Spread

Top of page

D. neobrevipes is thought to be native to tropical America and to have been introduced to Hawaii some time before the establishment of plant quarantine regulations (Rohrbach et al., 1988). It has presumably since been introduced to all its other recorded localities outside the Neotropics via trade in infested plant material.

Risk of Introduction

Top of page

D. neobrevipes has the potential to cause harm to its hosts in areas where it is introduced that lack natural enemies, or where it is protected from natural enemies by caretaker ants, most commonly species of *Pheidole* and *Solenopsis* (Jahn et al., 2003). *D. neobrevipes* is under quarantine restrictions in the USA, where it has been intercepted many times, particularly on samples from the Philippines (Ben-Dov, 2001). Qin et al. (2010) conducted an investigation into the risk of invasion by *D. neobrevipes* into China. Their results suggested that *D. neobrevipes* is a dangerous alien species with a high risk of invasion.

Habitat

Top of page

D. neobrevipes has a pantropical distribution, with a small number of records from subtropical or Mediterranean localities. It is mostly found wherever its main host, pineapple, is grown (Kessing and Mau, 1992).

Habitat List

Top of page

Category	Sub-Category	Habitat	Presence	Status
Terrestrial	Terrestrial – Managed	Cultivated / agricultural land	Principal habitat	Harmful (pest or invasive)
		Cultivated / agricultural land	Principal habitat	Natural

Host Plants and Other Plants Affected

Top of page

Plant name	Family	Context
Acacia (wattles)	Fabaceae	Main
Acacia farnesiana (huisache)	Fabaceae	Main
Acacia koa (koa)	Fabaceae	Main
Agave	Agavaceae	Main
Agave sisalana (sisal hemp)	Agavaceae	Main
Aglaonema	Araceae	Main
Alpinia	Zingiberaceae	Main
Alpinia purpurata (red ginger)	Zingiberaceae	Main
Anagallis arvensis (scarlet pimpernel)	Primulaceae	Main
Ananas comosus (pineapple)	Bromeliaceae	Main
Annona	Annonaceae	Main
Annona reticulata (bullock's heart)	Annonaceae	Main
Annona squamosa (sugar apple)	Annonaceae	Main
Arachis	Fabaceae	Main
Artocarpus (breadfruit trees)	Moraceae	Main
Artocarpus altilis (breadfruit)	Moraceae	Main
Artocarpus heterophyllus (jackfruit)	Moraceae	Main
Barringtonia	Lecythidaceae	Main
Barringtonia asiatica (sea poison tree)	Lecythidaceae	Unknown
Cajanus	Fabaceae	Main
Citrus	Rutaceae	Main
Citrus aurantiifolia (lime)	Rutaceae	Main
Citrus reticulata (mandarin)	Rutaceae	Main
Citrus sinensis (navel orange)	Rutaceae	Main
Clerodendrum (Fragrant clerodendron)	Lamiaceae	Main
Coccoloba (sea grape)	Polygonaceae	Main
Cocos nucifera (coconut)	Arecaceae	Main
Codiaeum (ornamental croton)	Euphorbiaceae	Main
Coffea (coffee)	Rubiaceae	Main
Crescentia alata	Bignoniaceae	Other
Crescentia alata	Bignoniaceae	Unknown
Cucurbita maxima (giant pumpkin)	Cucurbitaceae	Main
Garcinia mangostana (mangosteen)	Clusiaceae	Main
Gossypium (cotton)	Malvaceae	Main
Guettarda	Rubiaceae	Unknown
Heliconia	Heliconiaceae	Main
Mangifera indica (mango)	Anacardiaceae	Main
Manilkara zapota (sapodilla)	Sapotaceae	Main
Musa (banana)	Musaceae	Main
Musa acuminata (wild banana)	Musaceae	Main
Musa x paradisiaca (plantain)	Musaceae	Main
Nephelium lappaceum (rambutan)	Sapindaceae	Main
Opuntia (Pricklypear)	Cactaceae	Main

Plant name	Family	Context
Opuntia megacantha	Cactaceae	Unknown
Pandanus (screw-pine)	Pandanaceae	Main
Phaseolus (beans)	Fabaceae	Main
Philodendron	Araceae	Main
Pipturus argenteus	Urticaceae	Unknown
Piscidia piscipula	Fabaceae	Unknown
Polianthes	Agavaceae	Main
Polianthes tuberosa (tuberose)	Agavaceae	Main
Psidium guajava (guava)	Myrtaceae	Main
Punica	Punicaceae	Main
Punica granatum (pomegranate)	Punicaceae	Main
Samanea	Fabaceae	Main
Samanea saman (rain tree)	Fabaceae	Main
Solanum lycopersicum (tomato)	Solanaceae	Main
Solanum melongena (aubergine)	Solanaceae	Main
Tectona	Lamiaceae	Main
Theobroma	Malvaceae	Main
Theobroma cacao (cocoa)	Malvaceae	Main
Thespesia	Malvaceae	Main
Thespesia populnea (portia tree)	Malvaceae	Main
Tournefortia argentea	Boraginaceae	Unknown
Vigna unguiculata (cowpea)	Fabaceae	Main
Wrightia arborea (lanete)	Apocynaceae	Main
Yucca	Agavaceae	Main

Growth Stages

Top of page

Flowering stage, Fruiting stage, Vegetative growing stage

Symptoms

Top of page

D. neobrevipes is usually found near the top of the host plant and feeds by sucking phloem sap from the plant tissue. This may cause local lesions to form at the site of feeding on some hosts. These lesions are bizonate, with a dark green centre surrounded by a lighter green area (Dasgupta, 1988). *D. neobrevipes* also affects the plant's photosyntheitic ability by excreting sugary honeydew that fouls plant surfaces, forming a medium for the growth of sooty mould, which blocks sunlight and air from reaching the leaves, impairing photosynthesis (Tabata and Ichiki, 2015).

The main damage that pineapple mealybugs such as *D. neobrevipes* cause is as a result of their role as a vector of pineapple wilt. This devastating disease is caused by *Pineapple mealybug wilt associated virus-2* (PMWaV-2), a mealybug-transmitted ampelovirus (Subere et al., 2011). There are two types of wilt, quick wilt and slow wilt. Quick wilt, also known as mealybug wilt, develops around 2 months after a short attack by a large colony of mealybugs, whereas slow wilt is caused by many mealybugs feeding on the plant tissue over many months (Jahn et al., 2003). Slow wilt causes the inner leaves to turn dry and brown, and outer leaves to lose their turgidity and droop (Jahn et al., 2003). Unlike slow wilt, quick wilt causes leaves to turn a light-green to yellow-pink colour in plants younger than 6 months. In older plants, quick wilt causes leaves to droop, turn pink and dry out (Carter, 1932).

Both types of wilt cause leaves to droop and dry out. They also both affect the fruit yield of the plant, especially if symptoms are seen early in the season. Affected plants either produce smaller fruit or produce no fruit at all. Pineapple wilt may also result in the invasion of saprophytic organisms, which leads to collapse of the roots (Kessing and Mau, 1992). Ultimately, plants may die as a result of infection by pineapple wilt transmitted by *D. neobrevipes*.

D. neobrevipes also causes green spot disease of pineapple, which is characterized by galls on leaves caused by a reaction between the plant and a secretion from the mealybugs.

List of Symptoms/Signs

Top of page

Sign	Life Stages	Type
Fruit / discoloration		
Fruit / external feeding		
Fruit / honeydew or sooty mould		
Growing point / dead heart		
Growing point / external feeding		
Leaves / abnormal colours		
Leaves / honeydew or sooty mould		
Roots / external feeding		
Stems / discoloration of bark		
Stems / external feeding		
Stems / honeydew or sooty mould		
Whole plant / discoloration		
Whole plant / external feeding		

Species Vectored

Top of page

Pineapple mealybug wilt-associated viruses (pineapple mealybug wilt (PMBW))

Biology and Ecology

Top of page

Reproductive Biology

D. neobrevipes males and females reproduces sexually. Unmated females will not produce young (Beardsley, 1960). *D. neobrevipes* is ovoviviparous, with each female giving birth to approximately 350 live young in a lifetime, although it can be as many as 1000 (Kessing and Mau, 1992). Females go through 3 larval instars which last for 11 to 23 days, 6 to 20 days and 7 to 28 days, respectively. The total larval period is 35 days on average but can range from 26 to 52 days.

Males go through 4 larval instars before becoming winged adults. These instars last for 11 to 19 days, 7 to 19 days, 2 to 7 days and 2 to 8 days, respectively. The total larval period ranges from 22 to 53 days (Kessing and Mau, 1992).

Longevity

Adult females can live for 48 to 72 days, whereas the winged males live for 2 to 7 days (Kessing and Mau, 1992). Qin et al. (2011) found that the longevity of *D. neobrevipes* can vary depending on the mealybug's host; the longevity of *D. neobrevipes* on most hosts tested was 51.0 days, but they recorded a longevity of 62.5 days for female mealybugs on *Ananas comosus* Baili.

Associations

D. neobrevipes has a mutualistic symbiotic relationship with ants. The genera of ants most commonly associated with *D. neobrevipes* are *Pheidole* and *Solenopsis* (Jahn et al., 2003).

Ants benefit from the mutualism by feeding on the sugary honeydew produced by the mealybugs and also by feeding on some of the mealybugs' natural enemies. The removal of honeydew reduces the likelihood of fungal attack on the mealybugs, and the reduction of natural enemies protects the mealybugs from predation and parasitism. Jahn et al. (2003) reviewed a number of studies on *Pheidole megacephala*, the big-headed ant, and found that this species, which is dominant in pineapple crops in Hawaii, deterred natural enemies of *D. neobrevipes.* In addition to these benefits, the ants also protect mealybugs from inclement weather by providing earthen shelters, or by transporting them to safer areas. Jahn and Beardsley (1996) reported that in the absence of both natural enemies and adverse weather, *P.megacephala* provided no benefit to the mealybug population.

Natural enemies

Top of page

Natural enemy	Type	Life stages	Specificity	References	Biological control in	Biological control on
Aenasius brasiliensis	Parasite					
Anagyrus ananatis	Parasite					
Argiope appensa	Predator					
Blepyrus propinquus	Parasite				Hawaii	apples
Chelisoches morio	Predator					
Conocephalus saltator	Predator					
Cryptolaemus montrouzieri	Predator					
Curinus caeruleus	Predator					
Diadiplosis pseudococci	Predator					
Dicrodiplosis guatemalensis	Predator					
Euborellia annulipes	Predator					
Exochomus concavus	Predator					
Hambeltonia pseudococcinna	Parasite					
Hyperaspis c-nigrum	Predator					
Hyperaspis silvestri	Predator					
Labidura riparia	Predator					
Nephus bipunctatus	Predator					
Pseudaphycus dysmicocci	Parasite					
Pseudiastata nebulosa	Predator					
Rhyzobius forestieri	Predator					
Rhyzobius ventralis	Predator					
Scymnus apiciflavus	Predator					
Scymnus margipellens	Predator					
Scymnus uncinatus	Predator					
Tropidophryne melvillei	Parasite					
Zaplatycerus fullawayi	Parasite					

Means of Movement and Dispersal

Top of page

Natural Dispersal

First-instar nymphs of *D. neobrevipes* crawl upwards and can be dispersed by the wind (Jahn and Beardsley, 2000). Ants have been observed aiding the mealybugs' colonization of new plants by carrying mealybugs in their mandibles, helping them to disperse within and between fields (Phillips, 1934). However, in laboratory experiments by Jahn and Beardsley (1996), the ant *Pheidole megacephala* did not transport mealybugs in any significant numbers.

First instar *D. neobrevipes*, also known as crawlers, can be dispersed by the wind (Jahn and Beardsley, 2000).

Impact Summary

Top of page

Category	Impact
Environment (generally)	Negative

Impact: Economic

Top of page

D. neobrevipes is a pest of many economically important crops, particularly pineapple and banana. In addition to the direct damage it causes (see Symptoms), it also causes green spot disease and transmits pineapple wilt which is caused by *Pineapple mealybug wilt associated virus-2* (PMWaV-2). Sether and Hu (2002) showed that pineapple wilt can cause yield loss of 35% in pineapple, representing significant losses to producers.

Risk and Impact Factors

Top of page

Invasiveness
- Proved invasive outside its native range
- Tolerant of shade
- Capable of securing and ingesting a wide range of food
- Gregarious

Impact outcomes
- Host damage
- Negatively impacts agriculture
- Negatively impacts livelihoods
- Damages animal/plant products

Impact mechanisms
- Pest and disease transmission

Likelihood of entry/control
- Highly likely to be transported internationally accidentally

Detection and Inspection

Top of page

D. neobrevipes crawlers (first-instar nymphs) can be detected in the field using blue sticky traps. Jahn and Beardsley (2000) found blue sticky traps better for trapping *D. neobrevipes* than yellow sticky traps, which attract high numbers of other insects, such as flies.

D. neobrevipes is only found on the aerial parts of the plant (Beardsley 1960) and is usually seen on the surface, but can feed deep in the leaf axils or within the blossom cups. Therefore, a plant may need to be dissected in order to find all of the mealybugs on it (Jahn et al., 2003).

Similarities to Other Species/Conditions

Top of page

There are over 140 species in the genus *Dysmicoccus* but *D. neobrevipes* is most similar to *D. brevipes*, which is known as the pink form of the pineapple mealybug. Beardsley (1959) described the morphological differences between these two species and therefore was able to define them as two separate species. In *D. neobrevipes* the ventral sclerotization of the anal lobes is elongate, whereas in *D. brevipes* these areas are quadrate. Beardsley (1959) also noted that *D. brevipes* has several long setae on either side of the mid-dorsal axis of the 9th abdominal segment (now called 8th abdominal segment) which ranged from 45-80 µm long, whereas in *D. neobrevipes* the longest setae in this region are about 15 µm long, no longer than the other dorsal setae.

Prevention and Control

Top of page

Due to the variable regulations around (de)registration of pesticides, your national list of registered pesticides or relevant authority should be consulted to determine which products are legally allowed for use in your country when considering chemical control. Pesticides should always be used in a lawful manner, consistent with the product's label.

Prevention

Jahn (1990) showed that controlling mutualistic ants will prevent the build-up of mealybug populations, by reducing the protection the mealybugs benefit from, thereby allowing natural enemies to prey on any mealybugs present.

Physical barriers such as ant fences have shown partial effectiveness (Kessing and Mau, 1992), but the most effective ant control involves the use of insecticidal baits. A commonly used chemical for these baits is hydramethylnon (Jahn et al., 2003).

Control

Although it is thought that the control of ants is an effective way to prevent the build-up of *D. neobrevipes*, the mealybugs themselves may also need controlling.

Even if mealybugs have already established and symptoms of pineapple wilt have been observed, control should still be implemented as recovery can be rapid if the appropriate control measures are put in to place (Carter, 1967).

Movement Control

Controlling ants will prevent them from transporting mealybugs further in an area. The use of wind barriers around the edge of the field can reduce the number of mealybug crawlers (first-instar nymphs) that are spread by the wind to uninfested areas (Jahn and Beardsley, 2000).

Biological Control

D. neobrevipes has a range of natural enemies that, in the absence of caretaker ants, can effectively control populations of the mealybug. New predators can be introduced to an area in order to control the mealybugs, but without first controlling ant populations, these introductions will not be effective (Rohrbach et al. 1988).

Chemical Control

Chemicals can be effective at controlling *D. neobrevipes*, but if the mealybugs are feeding deep in the plant, they will be shielded from the application of insecticides. The waxy coating on the mealybugs may prevent penetration of chemical sprays, reducing their effectiveness. Insecticides that have been used in the control of mealybugs include the organophosphates malathion and diazinon (Jahn and Beardsley, 2003). The most effective ant control involves the use of insecticidal baits (Jahn et al. 2003).

References

Top of page

Aguilar CH, Lasalita-Zapico F, Namocatcat J, Fortich A, Bojadores RM, 2014. Farmers' perceptions about banana insect pests and integrated pest management (IPM) systems in SocSarGen, Mindanao, Philippines. International Proceedings of Chemical, Biological and Environmental Engineering (IPCBEE) [2014 International Conference on Intelligent Agriculture, Hong Kong, China, 13-14 February 2014.], 63:22-27. http://www.ipcbee.com/vol63/005-ICOIA2014-IA0015.pdf

Beardsley JW, 1959. On the taxonomy of Pineapple mealybugs in Hawaii, with a description of a previously unnamed species (Homoptera: Pseudococcidae). Proceedings of the Hawaiian Entomological Society, 17:29-37.

Beardsley JW, 1960. A preliminary study of the males of some Hawaiian mealybugs (Homoptera: Pseudococcidae). Proceedings of the Hawaiian Entomological Society, 17:199-243.

Beardsley JW, 1965. Notes on the Pineapple Mealybug Complex, with descriptions of two new species (Homoptera: Pseudococcidae). Proceedings of the Hawaiian Entomological Society, 19:55-68.

Beardsley JW, 1966. Insects of Micronesia. Homoptera: Coccoidea. Insects of Micronesia, 6(7):377-562 pp.

Beardsley JW, 1975. Homoptera: Coccoidea. Supplement. In: Insects of Micronesia 6. 657-662.

Beardsley JW, 1992. The pineapple mealybug complex; taxonomy, distribution and host relationships. International Pineapple Symposium, 334:383-386.

Ben-Dov Y, 1994. A systematic catalogue of the mealybugs of the world (Insecta: Homoptera: Coccoidea: Pseudococcidae and Putoidae) with data on geographical distribution, host plants, biology and economic importance. Andover, UK; Intercept Limited, 686 pp.

Ben-Dov Y, 2001. Dysmicoccus neobrevipes. ScaleNet. http://www.sel.barc.usda.gov/scalekeys/mealybugs/key/mealybugs/media/html/Species/Dysmicoccus_neobrevipes/Dysmicoccus_neobrevipes.html

Bua B, Karungi J, Kawube G, 2013. Occurrence and effects of pineapple mealybug wilt disease in central Uganda. Journal of Agricultural Science and Technology A, 3(5):410-416. http://www.davidpublishing.com/show.html?12655

Carter W, 1932, December. The Pineapple Mealybug (Pseudococcus brevipes (CM.)) and Wilt of Pineapples. (Abstract.). Phytopathology, 20(12):996-997 pp.

Dasgupta MK, 1988. Principles of Plant Pathology. New Delhi, India: Allied Publishers Limited, 1043 pp.

García Morales M, Denno BD, Miller DR, Miller GL, Ben-Dov Y, Hardy NB, 2016. ScaleNet: A literature-based model of scale insect biology and systematics. Database. http://scalenet.info

He YanBiao, Liu YingHong, Zhan RuLin, Xu ZaiFu, Sun GuangMing, Zhao YanLong, Li GuoPing, Chang JinMei, 2014. The occurrence of two species of pineapple mealybugs (Dysmicoccus spp.) (Hemiptera: Pseudococcidae) in China and their genetic relationship based on rDNA ITS sequences. Caryologia, 67(1):36-44. http://www.tandfonline.com/doi/full/10.1080/00087114.2014.891698

Hu JS, Sether DM, Melzer MJ, Subere CV, Cheah K, Chen Y, Li Q, Borth W, Wang IC, Nagai C, Wang ML, 2009. Characterization and management of pineapple mealybug wilt associated viruses. Acta Horticulturae [Proceedings of the Sixth International Pineapple Symposium, Joao Pessoa, Brazil, 18-23 November 2007.], No.822:185-189. http://www.actahort.org

Ito K, 1938. Studies on the life history of the pineapple mealybug, Dysmicoccus brevipes (Ckll.). Journal of Economic Entomology, 31:291-298.

Jahn GC, Beardsley JW, 2000. Interactions of ants (Hymenoptera: Formicidae) and mealybugs (Homoptera: Pseudococcidae) on pineapple. Proceedings of the Hawaiian Entomological Society, 34:181-185.

Jahn GC, Beardsley JW, González-Hernández H, 2003. A review of the association of ants with mealybug wilt disease of pineapple. Proceedings of the Hawaiian Entomological Society, 36:9-28.

Kessing JLM, Mau RFL, 1992. Dysmicoccus neobrevipes (Beardsley). Crop Knowledge Master. http://www.extento.hawaii.edu/kbase/crop/type/d_neobre.htm

Malumphy C, Ostrauskas H, Pye D, 2008. A provisional catalogue of scale insects (Hemiptera, Coccoidea) of Lithuania. Acta Zoologica Lituanica, 18(2):108-121. http://versita.metapress.com/content/u651315215867370/fulltext.pdf

Phillips JS, 1934, August. Bull. Exp. Stn. Pineapple Prod. coop. Ass. Hawaii, 15. Honolulu, iii + 57 pp.

Plant Health Australia, 2013. Exotic threat: grey pineapple mealybug. Australia Plant Health Factsheet. http://www.planthealthaustralia.com.au/wp-content/uploads/2013/03/Grey-pineapple-mealy-bug-FS.pdf

Rohrbach KG, Beardsley JW, German TL, Reimer NJ, Sanford WG, 1988. Mealybug wilt, mealybugs, and ants of pineapple. Plant Disease, 72(7):558-565

Sarkar MA, Wiwat Suasa-ard, Sopon Uraichuen, 2014. Suitability of different mealybug species (Hemiptera: Pseudococcidae) as hosts for the newly identified parasitoid Allotropa suasaardi Sarkar & Polaszek (Hymenoptera: Platygasteridae). Kasetsart Journal, Natural Science, 48(1):17-27. http://kasetsartjournal.ku.ac.th/kuj_files/2014/A1404181034288437.pdf

Sether DM, Hu JS, 2002. Yield impact and spread of Pineapple mealybug wilt associated virus-2 and mealybug wilt of pineapple in Hawaii. Plant Disease, 86(8):867-874.

Sirisena UGAI, Watson GW, Hemachandra KS, Wijayagunasekara HNP, 2013. Mealybugs (Hemiptera: Pseudococcidae) species on economically important fruit crops in Sri Lanka. Tropical Agricultural Research, 25(1):69-82. http://www.pgia.ac.lk/sites/default/files/congress/journel/v25/Journal-No%201/Papers/7%20U.G.A.I.%20Sirisena_final_final_edited.pdf

Subere CVQ, Sether DM, Borth WB, Melzer MJ, Hu JS, 2011. Transmission characteristics of Pineapple mealybug wilt associated virus-2 by the grey pineapple mealybugs Dysmicoccus neobrevipes in Hawaii. Acta Horticulturae [VII International Pineapple Symposium, Johor, Malaysia, 13-15 July 2010.], No.902:393-399. http://www.actahort.org/books/902/902_47.htm

Tabata J, Ichiki RT, 2015. A New Lavandulol-related Monoterpene in the Sex Pheromone of the Grey Pineapple Mealybug, Dysmicoccus neobrevipes. Journal of Chemical Ecology, 41(2):194-201.

Tanaka H, Uesato T, 2012. New records of some potential pest mealybugs (Hemiptera: Coccoidea: Pseudococcidae) in Japan. Applied Entomology and Zoology, 47(4):413-419. http://rd.springer.com/article/10.1007/s13355-012-0134-6/fulltext.html

Tranfaglia A, 1983. Findings on Pseudococcidae and Coccidae (Homoptera, Coccoidea) new to the Italian fauna. Atti XIII Congresso Nazionale Italiano di Entomologia. Istituto di Entomologia Agraria e Apicoltura, Universita di Torino Turin Italy, 453-458

United States Department of Agriculture, 1979. A mealybug (Dysmicoccus neobrevipes Beardsley) - Florida - new continental United States record. Cooperative Plant Pest Report, 4(5/6):64.

US Fish and Wildlife Service, 1994. In: Recovery Plan for Serianthes nelsonii. US Fish and Wildlife Service, 60 pp.

Waterhouse DF, 1993. The Major Arthropod Pests and Weeds of Agriculture in Southeast Asia. ACIAR Monograph No. 21. Canberra, Australia: Australian Centre for International Agricultural Research, 141 pp.

ZhenQiang Qin, Wu JianHui, Qiu BaoLi, Ren ShunXiang, Ali S, 2011. Effects of host plant on the development, survivorship and reproduction of Dysmicoccus neobrevipes Beardsley (Hemiptera: Pseudoccocidae). Crop Protection, 30(9):1124-1128. http://www.sciencedirect.com/science/journal/02612194

ZhenQiang Qin, Wu JianHui, Ren ShunXiang, Wan FangHao, 2010. Risk analysis of the alien invasive gray pineapple mealybug (Dysmicoccus neobrevipes Beardsley) in China. Scientia Agricultura Sinica, 43(3):626-631. http://www.ChinaAgriSci.com

Distribution References

Aguilar C H, Lasalita-Zapico F, Namocatcat J, Fortich A, Bojadores R M, 2014. Farmers' perceptions about banana insect pests and integrated pest management (IPM) systems in SocSarGen, Mindanao, Philippines. International Proceedings of Chemical, Biological and Environmental Engineering (IPCBEE). 22-27. http://www.ipcbee.com/vol63/005-ICOIA2014-IA0015.pdf

BEARDSLEY J W, 1965. Notes on the pineapple mealybug complex, with descriptions of two new species (Homoptera : Pseudocoecidae). Proceedings of the Hawaiian Entomological Society. 19 (1), 55-68 pp.

Beardsley JW, 1975. Homoptera: Coccoidea. Supplement. In: Insects of Micronesia, 6 657-662.

Bua B, Karungi J, Kawube G, 2013. Occurrence and effects of pineapple mealybug wilt disease in central Uganda. Journal of Agricultural Science and Technology A. 3 (5), 410-416. http://www.davidpublishing.com/show.html?12655

CABI, Undated. CABI Compendium: Status inferred from regional distribution. Wallingford, UK: CABI

García Morales M, Denno BD, Miller DR, Miller GL, Ben-Dov Y, Hardy NB, 2016. ScaleNet: A literature-based model of scale insect biology and systematics. Database., http://scalenet.info

He YanBiao, Liu YingHong, Zhan RuLin, Xu ZaiFu, Sun GuangMing, Zhao YanLong, Li GuoPing, Chang JinMei, 2014. The occurrence of two species of pineapple mealybugs (Dysmicoccus spp.) (Hemiptera: Pseudococcidae) in China and their genetic relationship based on rDNA ITS sequences. Caryologia. 67 (1), 36-44. http://www.tandfonline.com/doi/full/10.1080/00087114.2014.891698

Hu J S, Sether D M, Melzer M J, Subere C V, Cheah K, Chen Y, Li Q, Borth W, Wang I C, Nagai C, Wang M L, 2009. Characterization and management of pineapple mealybug wilt associated viruses. Acta Horticulturae. 185-189. http://www.actahort.org

Malumphy C, Ostrauskas H, Pye D, 2008. A provisional catalogue of scale insects (Hemiptera, Coccoidea) of Lithuania. Acta Zoologica Lituanica. 18 (2), 108-121. http://versita.metapress.com/content/u651315215867370/fulltext.pdf DOI:10.2478/v10043-008-0014-z

Sarkar M A, Wiwat Suasa-ard, Sopon Uraichuen, 2014. Suitability of different mealybug species (Hemiptera: Pseudococcidae) as hosts for the newly identified parasitoid Allotropa suasaardi Sarkar & Polaszek (Hymenoptera: Platygasteridae). Kasetsart Journal, Natural Science. 48 (1), 17-27. http://kasetsartjournal.ku.ac.th/kuj_files/2014/A1404181034288437.pdf

Sirisena U G A I, Watson G W, Hemachandra K S, Wijayagunasekara H N P, 2013. Mealybugs (Hemiptera: Pseudococcidae) species on economically important fruit crops in Sri Lanka. Tropical Agricultural Research. 25 (1), 69-82. http://www.pgia.ac.lk/sites/default/files/congress/journel/v25/Journal-No%201/Papers/7%20U.G.A.I.%20Sirisena_final_final_edited.pdf

Tanaka H, Uesato T, 2012. New records of some potential pest mealybugs (Hemiptera: Coccoidea: Pseudococcidae) in Japan. Applied Entomology and Zoology. 47 (4), 413-419. http://rd.springer.com/article/10.1007/s13355-012-0134-6/fulltext.html DOI:10.1007/s13355-012-0134-6

Tranfaglia A, 1983. Findings on Pseudococcidae and Coccidae (Homoptera, Coccoidea) new to the Italian fauna. (Reperti su Pseudococcidae e Coccidae (Homoptera: Coccoidea) nuovi per la fauna italiana.). In: Atti XIII Congresso Nazionale Italiano di Entomologia. [Atti XIII Congresso Nazionale Italiano di Entomologia.], Turin, Italy: Istituto di Entomologia Agraria e Apicoltura, Università di Torino. 453-458.

United States Department of Agriculture, 1979. A mealybug (Dysmicoccus neobrevipes Beardsley) - Florida - new continental United States record. Cooperative Plant Pest Report. 4 (5/6), 64.

Contributors

Top of page

16/03/15 Original text by:

Claire Curry, CABI, UK

Distribution Maps

Top of page

You can pan and zoom the map

Save map

Analyze by: Source

CABI Summary Data

Analyze by: Extent

Not recorded

Widespread

Download KML file   Download CSV file

Next: Dysmicoccus brevipes (pineapple mealybug) >>
Return to Search Results

Top of page