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Scientific Note/Comunicação Científica

Occurrence of legume caterpillar moth in soybeans in northern Brazil

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Abstract. This study reports the first occurrence of legume caterpillar moth *Selenisa sueroides* (Guenée) (Lepidoptera: Noctuidae) attacking soybeans in northern Brazil, being the second record in this crop in the country. This report resulted from periodic monitoring of soybean pests and natural enemies using the beat cloth in the region of Paragominas, state of Pará, during the 2015-2017 seasons. The presence of *S. sueroides* larvae was recorded in all crop seasons, and in the latter higher infestations were observed and required chemical control in some areas. Population surveys of *S. sueroides* in soybeans will be continued in the following seasons for monitoring its occurrence and expansion in the region. Basic research on the insect biology and host preference is highly encouraged since this information is still lacking for the Brazilian conditions.

Keywords: Exotic pest; *Glycine max*; *Selenisa sueroides* monitoring.

Ocorrência de lagarta das leguminosas em soja no norte do Brasil

Resumo. Este estudo reporta a primeira ocorrência da lagarta-pinça *Selenisa sueroides* (Guenée) (Lepidoptera: Noctuidae) atacando plantas de soja no norte do Brasil, sendo seu segundo registro de ocorrência na cultura no país. O relato de sua ocorrência é proveniente de monitoramentos periódicos de pragas e inimigos naturais de soja por meio de batida de pano na região de Paragominas, estado do Pará, durante as safras 2015-2017. A presença de lagartas de *S. sueroides* foi registrada em todas as safras, sendo que na última safra altas infestações foram observadas, necessitando controle químico em algumas áreas. Levantamentos populacionais de *S. sueroides* em soja serão continuados nas safras seguintes para monitorar sua ocorrência e expansão na região. Pesquisa básica sobre a biologia e preferência hospedeira do inseto é altamente recomendada, uma vez que essas informações ainda estão faltando para as condições brasileiras.

Palavras-chave: *Glycine max*; Monitoramento; praga exótica; *Selenisa sueroides*.

Brazil stands out in soybean production, being the second largest producer worldwide with 95.7 million tons, positioning behind the United States. The main producing soybean states of Brazil are Mato Grasso, with approximate production of 26 million tons in 9 million ha, followed by Paraná, Rio Grande do Sul, Goiás, and Mato Grosso do Sul. The state of Pará has strong expansion potential in soybean production, and is currently the second largest producer in northern Brazil. Soybean production in the Pará state is 1.3 million tons in 429 thousand ha, with average yield of 3,003 kg ha^{-1}, which is similar to the national average soybean yield (CONAB 2017).

Soybean crop has a broad complex of infesting arthropod pests (Hoffmann-Campo *et al.* 2012), which can vary in severity and importance according to the growing region. In the state of Pará, especially in the grain grower region of Paragominas, the following defoliating caterpillars stand out: *Chrysodeixis includens* (Walker), *Anticarsia gemmatalis* Hübner, and *Spodoptera* spp., especially *Spodoptera eridania* (Cramer), *Spodoptera cosmioides* (Walker), and *Spodoptera frugiperda* (J. E. Smith) (Lepidoptera: Noctuidae). In addition, piercing-sucking insects such as the whitefly *Bemisia tabaci* (Gennadius) biotype B (Hemiptera: Aleyrodidae), the neotropical stink bug *Euschistus heros* (Fabricius), and the green bug *Nezara viridula* (Linnaeus) (Hemiptera: Pentatomidae) are predominantly present in soybean fields of the region.

In the last crop seasons, incidence of the legume caterpillar moth *Selenisa sueroides* (Guenée) (Lepidoptera: Noctuidae) (Figure 1) has been observed in soybean fields of Paragominas Pará state. This paper reports the second occurrence of the legume caterpillar moth in soybeans in Brazil, being the first record for this crop in northern Brazil. In other regions of the world, *S. sueroides* is regarded as a polyphagous insect pest, feeding mainly on legumes (Genung & Green 1965; Bullock & Kretschmer 1982; Zagatti *et al.* 1995; Formentini 2009). Interestingly, there are also records of *S. sueroides* larvae damaging irrigation systems of citrus orchards, as reported by Bushwein *et al.* (1989)

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and Bushwein & Childers (1990) in the states of Florida and California, USA, respectively.

The occurrence of the legume caterpillar moth in Brazil has been previously reported by Camargo (2001) while assessing insect diversity in cultivated areas and legal reserves in Balsas, state of Maranhão (evaluations from 1996 to 2000). Specht *et al.* (2005) reported the presence of *S. sueroides* in environmental reserves in the state of Rio Grande do Sul (collections made in 2000 and 2001). Zenker *et al.* (2010) detected the insect species in vines in Bento Gonçalves, also in Rio Grande do Sul. Last year, in 2016, there were also records of *S. sueroides* larvae attacking soybean fields in several counties of the Mato Grosso do Sul state (Santos *et al.* 2016). After field-collecting developed larvae of *S. sueroides* in soybeans, Santos *et al.* (2016) observed pupae duration of 15 days and adult longevity of 16-18 days; however, these authors could not evaluate the reproductive parameters due to the low number of surviving adults. To date, basic information is lacking on *S. sueroides* biology and host plant preference, and for the Brazilian conditions it is very important to estimate its distribution range and damage potential for soybeans.

This report is the result of periodic monitoring of soybean pests and natural enemies using the beat cloth. The main objective of the project is to evaluate population dynamics of insect pests and natural enemies along the soybean cycle in the state of Pará during the 2015-2017 crop seasons (Shepard *et al.* 1974). In the Pará state, *S. sueroides* has been observed since 2015 in soybean fields, and in the last season of 2017 higher infestation and defoliation levels were observed, requiring insecticide application for control. The incidence of *S. sueroides* was detected in the counties of Paragominas, Dom Elizeu, Ulianópolis, Rondon do Pará, Abel Figueiredo, Thailand, Maranhão of Itinga, and Açailândia. Experimental fields of the Universidade Federal Rural da Amazônia and Embrapa in the region that cultivate diverse soybean cultivars (conventional and Bt, Intacta RR2 Pro®), such as Coopernorte, Luiza, Progresso, Alvorada, Cristalina, Triunfo, Jaguaré, Transamérica, Elizabeth, Havilá, and Itapú II, suffered *S. sueroides* infestations at various phenological stages of soybean.

It is important to mention that *S. sueroides* is not yet considered a secondary soybean pest in Brazil. However, intensification of its occurrence and damage potential for the crop may cause many problems from the economic and environmental perspectives. Population surveys of legume caterpillar moths in soybean fields will be continued in the next seasons in the grain grower region of Paragominas in order to monitor its occurrence and expansion potential in northern Brazil. Furthermore, conduction of basic research on the insect biology and host preference is highly encouraged since this information is still lacking for the Brazilian conditions.

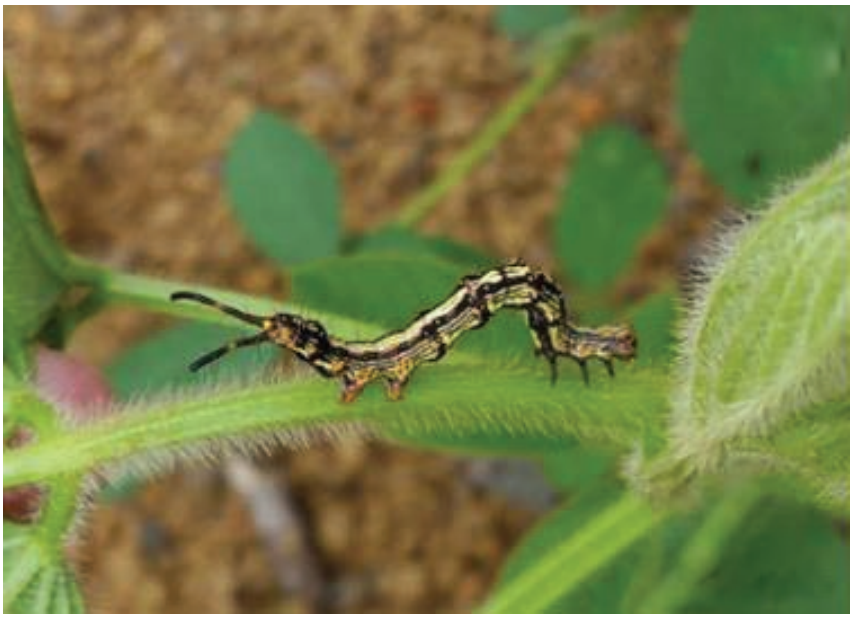

Figure 1. Larvae of legume caterpillar moth *Selenisa sueroides*. Foto: Daniele Silva da Paixão

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REFERENCES

Bullock, R.C. & A.E. Kretschmer Junior, 1982. Identification and control of foliar pests of American jointvetch. Florida Entomologist, 65: 335-339. DOI: https://doi.org/10.2307/3494306.

Bushwein, J.R. & C.C. Childers, 1990. Parasitoids associated with the immature stages of *Selenisa sueroides* (Lepidoptera: Noctuidae). Florida Entomologist, 73: 337-339. doi: https://doi.org/10.2307/3494821.

Bushwein, J.R., C.H. Matthews & C.C. Childers, 1989. *Selenisia sueroides* (Lepidoptera: Noctuidae): a pest of subcanopy irrigation systems in citrus in Southwest Florida. Florida Entomologist, 72: 511-519.

Camargo, A.J.A., 2001. *Diversidade de insetos em áreas cultivadas e reserva legal:* considerações e recomendações. Planaltina: Embrapa Cerrados. Available on: <https://www.agencia.cnptia.embrapa.br/recursos/Diversidade_InsetosIDloDNxD5fx6.pdf>. [Accessed: 29.i.2015].

Charles W.M., 2016. Buguuide: Identification, Images, & Information. Available on: <https://bugguide.net/node/view/1276030>. [Accessed in: 28.i.2019].

CONAB, 2017. Companhia Nacional de Abastecimento. Acompanhamento da safra brasileira. Available from: <http://www.conab.gov.br/conteudos.php?a=1253&t=>. [Accessed in: 10.i.2017].

Formentini, A.C., 2009. Lepidópteros associados à cultura da soja: diversidade e parasitismo natural por insetos e fungos entomopatogênicos. Dissertation (Master in Biotechnology) – Instituto de Biotecnologia Universidade de Caxias do Sul, Universidade de Caxias do Sul. 69 f.

Genung, W.G. & V.E. Greeen Junior, 1965. Some stem boring insects associated with soybeans in Florida. Florida Entomologist, 48: 29-33. DOI: https://doi.org/10.2307/3493521.

Hoffmann-Campo, C.B., B.S. Correa-Ferreira & F. Moscardi, 2012. Soja: manejo integrado de insetos e outros artrópodes-praga. Brasília: Embrapa, 859 p.

Santos, R.O., P.A. Degrande, R. Azambuja & E.P. Souza, 2016. Occurrence of *Selenisa sueroides* (Guenée, 1852) (Lepidoptera: Noctuidae) in soybeans in Brazil. Arquivos do Instituto Biológico, 88: 1-3. DOI: https://doi.org/10.1590/1808-1657000222015.

Shepard, M., G.R. Carner & S.G. Turnipseed, 1974. A comparison of three sampling methods for arthropods in soybeans. Environmental Entomology, 3: 227-232. DOI: https://doi.org/10.1093/ee/3.2.227.

Specht, A., J.A. Teston, R.A., Di Mare & E. Corseuil, 2005. Noctuídeos (Lepidoptera: Noctuidae) coletados em quatro Áreas Estaduais de Conservação do Rio Grande do Sul, Brasil. Revista Brasileira de Entomologia, 49: 130-140. DOI: https://doi.org/10.1590/S0085-56262005000100015.

Zagatti, P., B. Lalanne-Cassou & J.D. D'Aubigny, 2015. Catalogue des lépidoptères des Antilles françaises. Institut National de la Recherche Agronomique, France. Available on: <http://www7.inra.fr/papillon/noctuid/noctuide.htm>. Accessed in: 28.i.2015].

Zenker, M.M., M. Botton, J.A. Teston & A. Specht, 2010. Noctuidae moths occurring in grape orchards in serra gaúcha, Brazil and their relation to fruit-piercing. Revista Brasileira de Entomologia, 54: 288-297. DOI: https://doi.org/10.1590/S0085-56262010000200012.

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