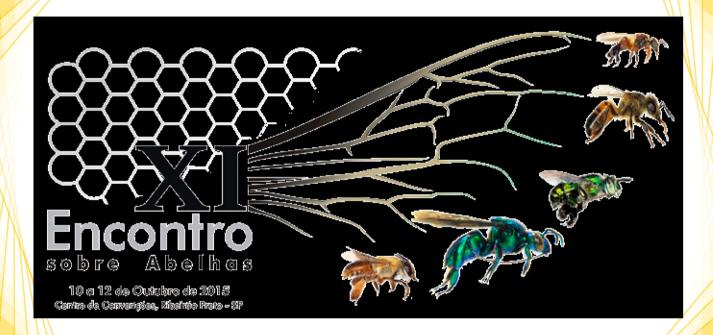
ANAIS



Editores: Zilá Luz Paulino Simões, Joyce M. Volpini Almeida, Eduardo A. B. Almeida

Dados Internacionais de Catalogação na Publicação (CIP)

(Câmara Brasileira do Livro, SP, Brasil)

Encontro sobre Abelhas

(9.: 2015: Ribeirão Preto, SP)

XI Encontro sobre abelhas = Annals of the XI Brazilian Bee Meeting

[editores Zilá Luz Paulino Simões, Joyce M. Volpini Almeida, Eduardo A. B. Almeida]

Ribeirão Preto, SP: Moringa Comunicação LTDA, 2015

Vários organizadores

1. Abelhas - Congressos.

I. Simões, Zilá Luz Paulino. II. Almeida, Joyce M. Volpini III. Almeida, Eduardo A. B.

ISBN: 978-85-69903-00-0

10-07799 CDD-595.79906

Índices para catálogo sistemático

1. Congressos : Abelhas : Zoologia 595.79906

Anais do XI Encontro sobre Abelhas. Ribeirão Preto. 2015 Simões, Z.L.P.; Almeida, J.M.J.; Almeida, E.A.B.

> Número páginas 427

STINGLESS BEEKEEPING DEVELOPMENT IN NORTHEASTERN BRAZIL MAY BE IMPAIRED MY EXTREME WEATHER CONDITIONS

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RESUMO: Even though stingless beekeeping has a great potential as a sustainable development tool, the activity remains essentially informal, technical knowledge is scarce, and management practices lack the sophistication and standardization found in apiculture. Here we contributed to the further development of stingless beekeeping by investigating the long-term impact of management and climate on honey production and colony survival in the stingless bee Jandaíra (Melipona subnitida). We analyzed a ten year record of 155 Jandaíra colonies kept by a commercial honey producer of Northeastern Brazil. This constitutes the longest and most accurate record available for a stingless bee. We modeled honey production in relation to time, age, management practices (colony division and food supplementation) and climatic factors (temperature and precipitation), and used a model selection approach to identify which factors best explained honey production. We also modeled colony mortality in relation to climatic factors. Although the amount of honey produced by each colony decreased over time, we found that the probability of producing honey increased over the years. Colony divisions decreased honey production, but did not affect honey presence; while supplementary feeding positively affected honey production. In warmer years, the probability of producing honey decreased and the amount of honey produced was lower. In years with lower precipitation fewer colonies produced honey. In contrast, colony mortality was not affected by climatic factors, and some colonies lived up to nine years, enduring extreme climatic conditions. Our findings provide useful guidelines to improve management and honey production in stingless bees and alert that if global warming predictions are correct, honey production in drier areas of Brazil may be compromised.

Keywords: honey production, meliponiculture, stingless bees.

Financial support: CAPES, FAPESP (2012/13200-5), and the National Science Foundation of the USA.