

PINEA SPOT CONGRESS

LISBON 2023

21 TO 23 NOVEMBER



Timing is everything

Monitoring seed bug populations for sustainable management

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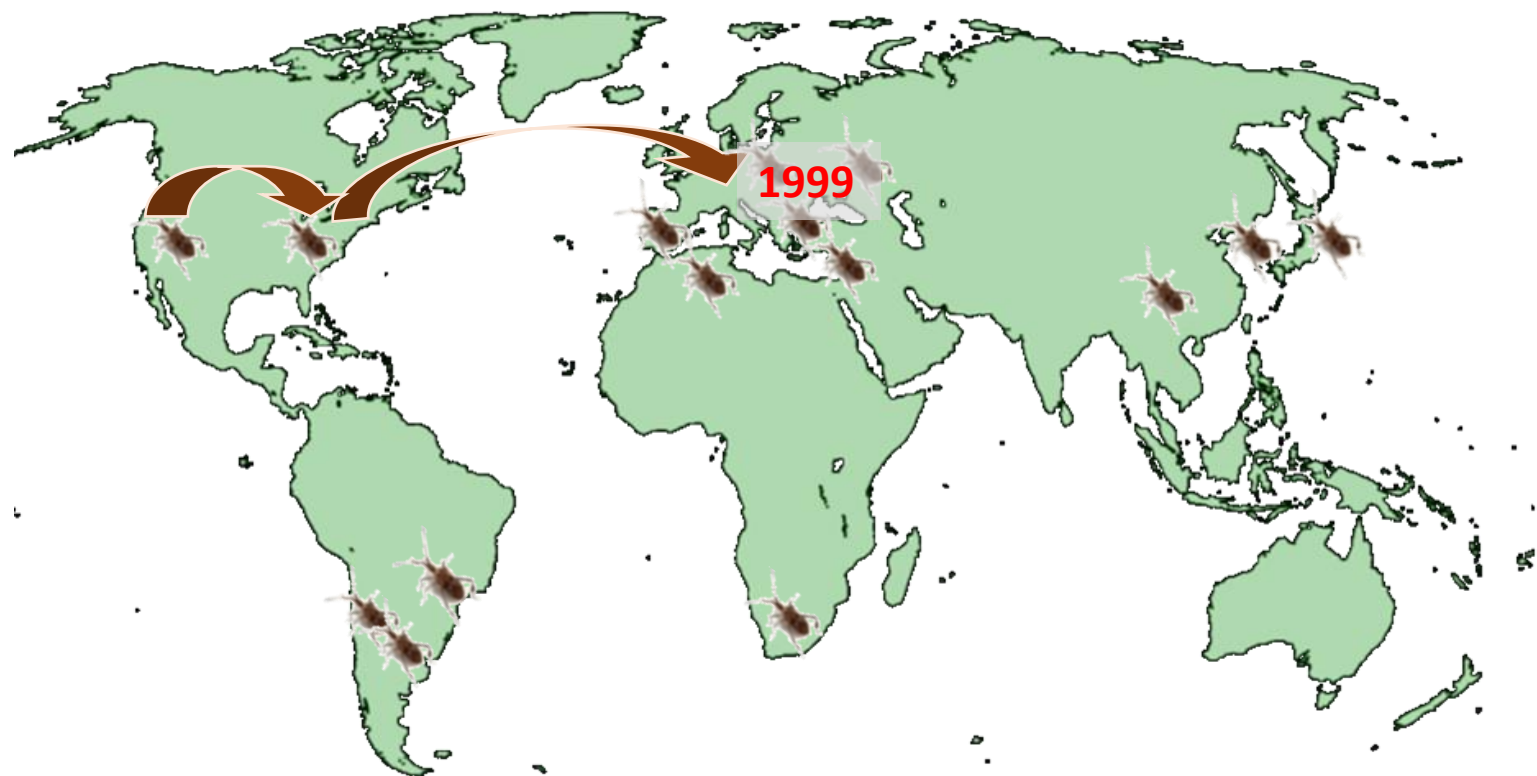
Edmundo Sousa

Conceição Santos Silva



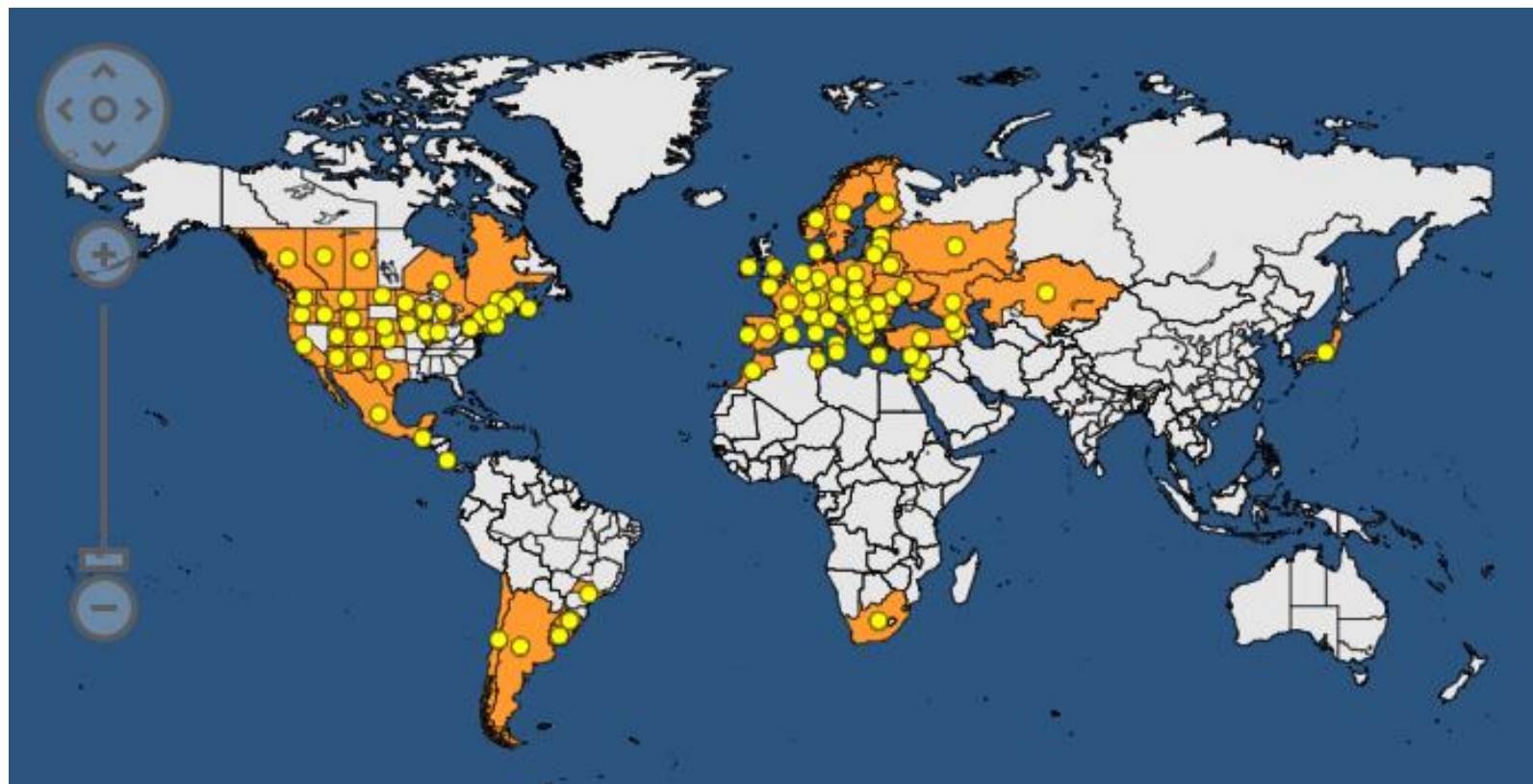
Western Conifer Seed Bug / Sugador de Pinhas

Leptoglossus occidentalis



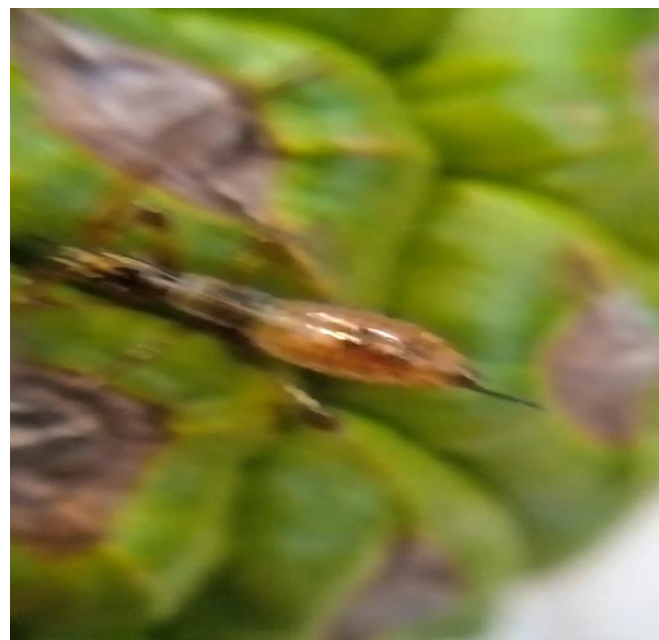
Western Conifer Seed Bug / Sugador de Pinhas

Leptoglossus occidentalis



Western Conifer Seed Bug / Sugador de Pinhas

Leptoglossus occidentalis



Seeds of *Pinus pinea* with damage by *L. occidentalis*

Western Conifer Seed Bug / Sugador de Pinhas

Leptoglossus occidentalis



Impacts

- *Pinus pinea* seed market : damage on seeds and mortality of young cones (from 15% to 80%)
- Seed orchards for improved varieties
- Natural forest regeneration



Western Conifer Seed Bug / Sugador de Pinhas

Leptoglossus occidentalis



Impacts



➤ *Pinus nigra*

No traps available
No visible damage on cones

➤ natural forest regeneration



Grupo Operacional +PINHÃO

Gestão integrada de agentes bióticos
associados à perda de produção do pinhão

2018 - 2022



**PEDRO MIGUEL
BELO RAMOS
COURINHA MARTINS.**



**HERDADE DA ABEGOARIA
SOCIEDADE AGRÍCOLA LDA.**



**SOCIEDADE AGRÍCOLA MONTE DA
SÉ LDA.**





Grupo Operacional +PINHÃO

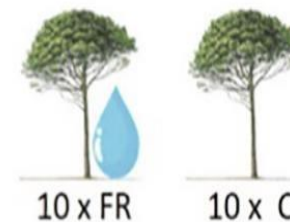
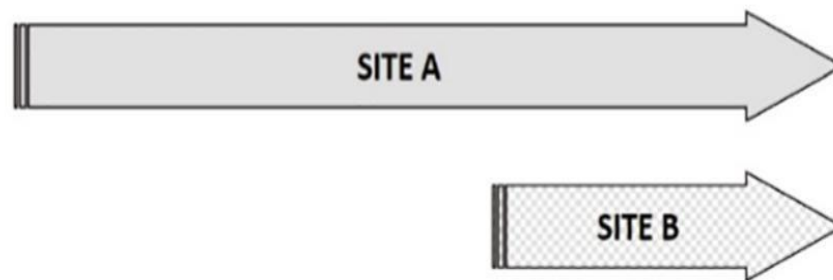
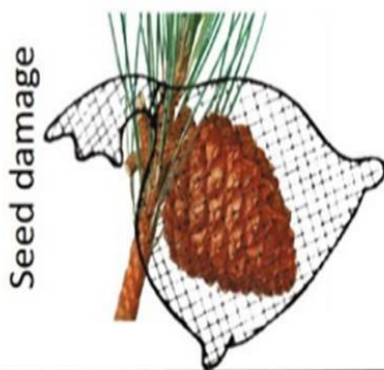
Gestão integrada de agentes bióticos
associados à perda de produção do pinhão

2018 - 2022

What is the (unequivocal) impact of *L. occidentalis* on *P. pinea* last-year cones?

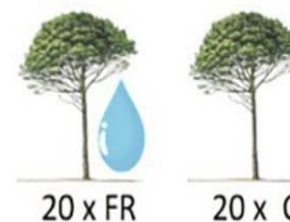
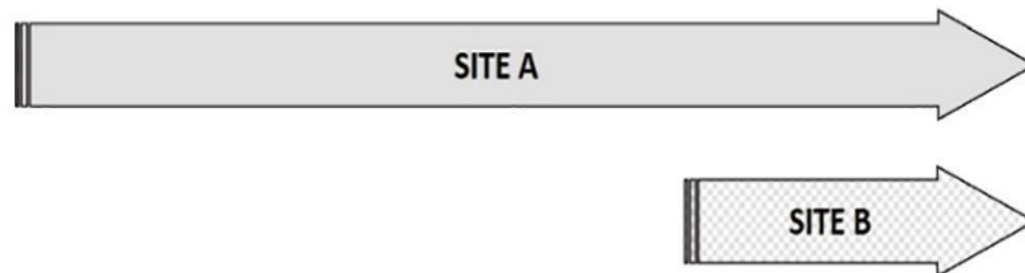
Methods Integrating seed loss and bug density

Seed losses estimations using protected (P) and non protected (N) cones



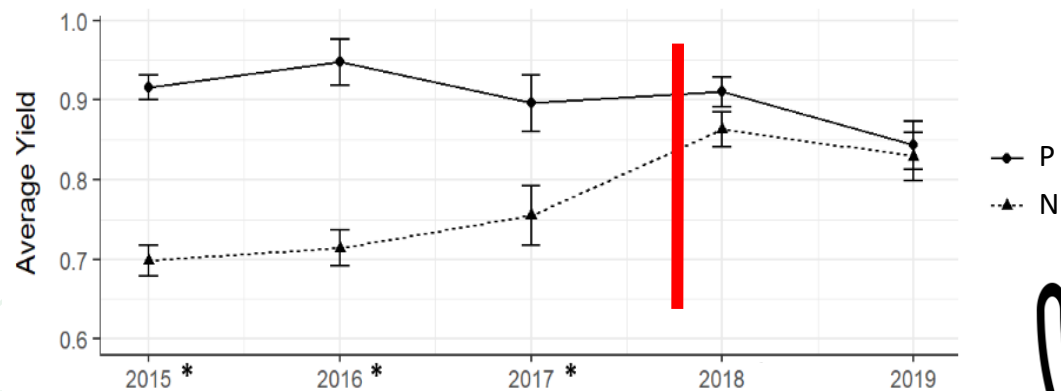
Estimation of seed losses and bug density in pines with fertilization and irrigation (FR) and pines control (C)

Monthly estimation of the insect density

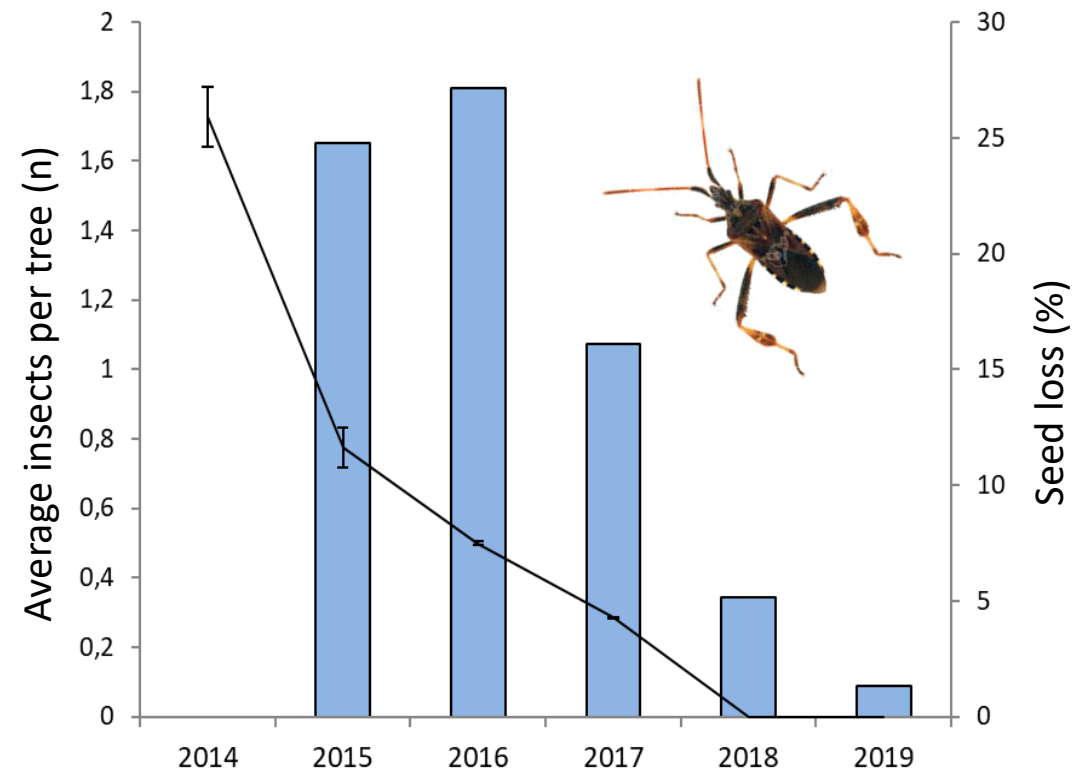
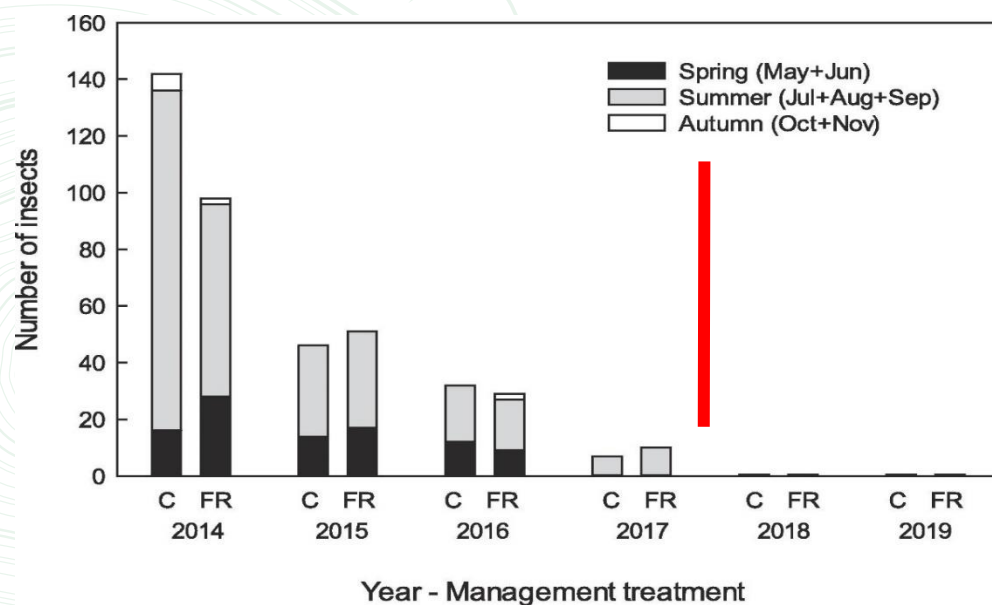


Results Integrating seed loss and bug density

Seed loss



Bug density



Take home messages



Strong evidence for insect causality in the decreasing
Stone pine seed yield

Take home messages



Strong evidence for insect causality in the decreasing
Stone pine seed yield

No significant differences between fertilized and irrigated
and control trees in insect presence

Take home messages



Strong evidence for insect causality in the decreasing
Stone pine seed yield

No significant differences between fertilized and irrigated
and control trees in insect presence

Insect population dynamics highly variable

A red hand-drawn oval highlights the text 'Insect population dynamics highly variable'. A black arrow points from the right side of the oval towards the right edge of the slide.

Take home **(most important)** message

Insect population dynamics highly variable



Key
priority

**Network of plots of grafted pines to
monitor the bug populations**

*Enables
data-driven
decisions*

- ✓ Informed and sustainable pest management with the control measures being applied at the right time and only if needed
- ✓ Study the determinants of the population dynamics



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Thank you | Obrigada | Gracias

We thank the following for their financial and logistical support:



INSTITUTO
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Universidade de Lisboa



fct

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CONGRESSO PINEA SPOT LISBOA 2023

21 A 23 DE NOVEMBRO

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