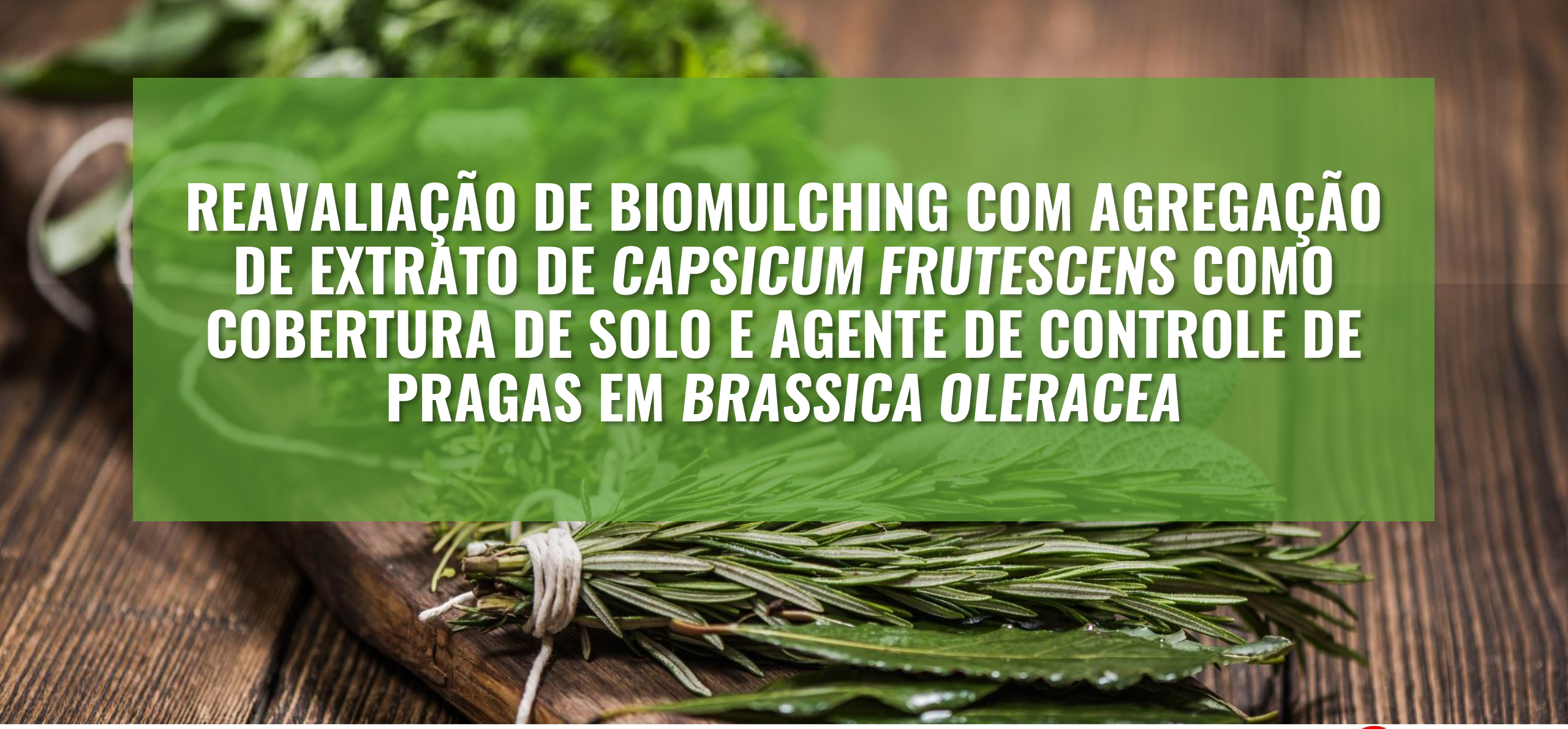


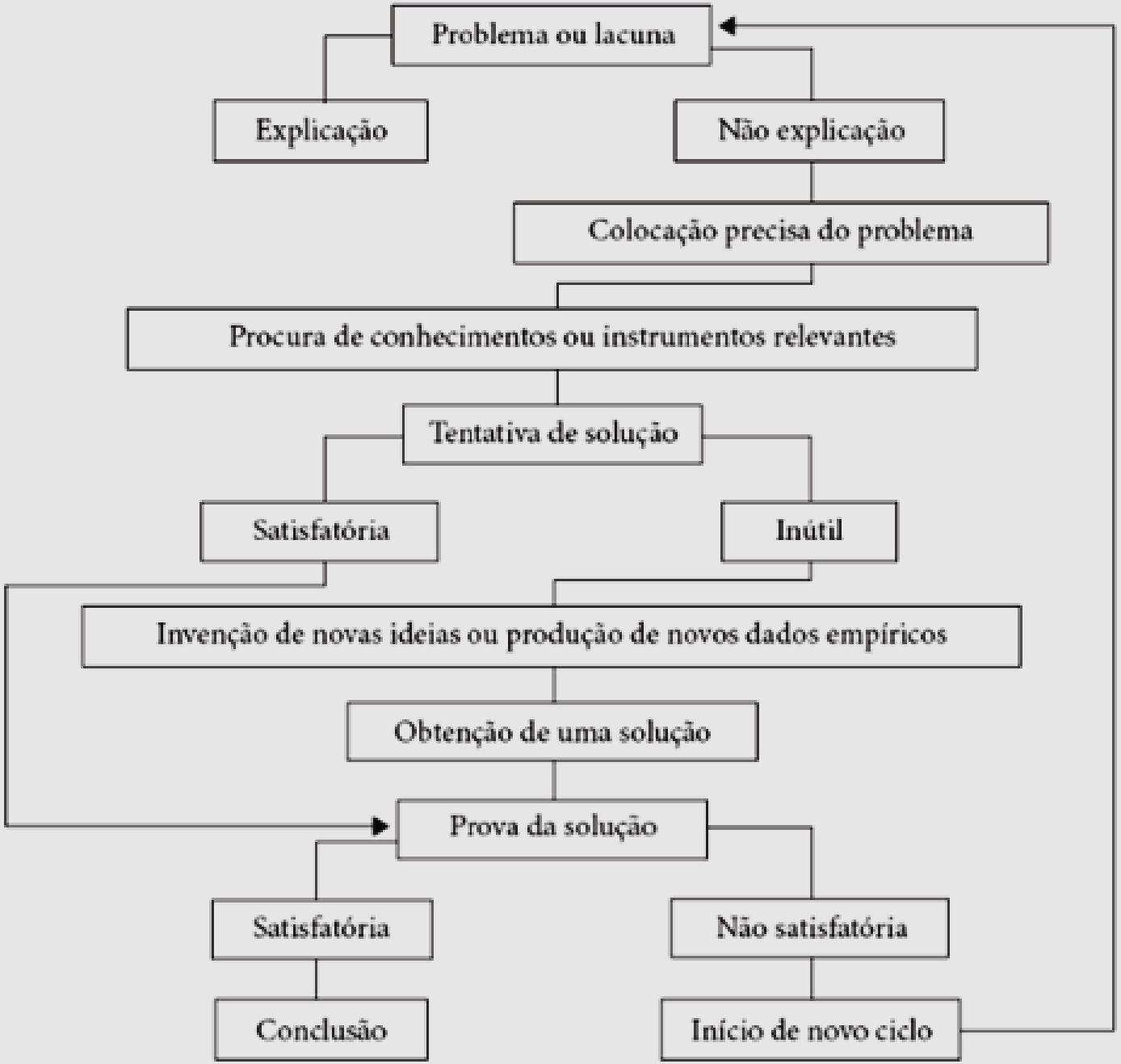
REAVALIAÇÃO DE BIOMULCHING COM AGREGAÇÃO DE EXTRATO DE *CAPSICUM FRUTESCENS* COMO COBERTURA DE SOLO E AGENTE DE CONTROLE DE PRAGAS EM *BRASSICA OLERACEA*

Lucas Melo Schnnor
Mateus Colombo

UFRGS

CIÊNCIA

- Descobertas
- Criar novas tecnologias
- Melhorar a vida
- Aprimorar um produto ou processo



O MÉTODO CIENTÍFICO

Método é o conjunto das atividades sistemáticas e racionais que, com maior segurança e economia, permite alcançar o objetivo de produzir conhecimentos válidos e verdadeiros, traçando o caminho a ser seguido, detectando erros e auxiliando as decisões do cientista.

(Marconi, M. A., Lakatos, E. M., Medeiros, J. B. **Fundamentos de metodologia científica** - 9. ed. - São Paulo: Atlas, 2021.)

REPRODUTIBILIDADE

- Pilar da ciência
- Confiança
- Qualidade
- Robustez

Para Salvador (1980, p. 11), os trabalhos científicos originais devem permitir a outro pesquisador, baseado nas informações dadas:

(a) Reproduzir as experiências e obter os resultados descritos, com a mesma precisão e sem ultrapassar a margem de erro indicada pelo autor.
(b) Repetir as observações e julgar as conclusões do autor.
(c) Verificar a exatidão das análises e deduções que permitiram ao autor chegar às conclusões.

(Marconi, M. A., Lakatos, E. M., Medeiros, J. B. **Fundamentos de metodologia científica** - 9. ed. - São Paulo: Atlas, 2021.)

ESTUDO DE CASO:

BIOMULCHING

- Alternativa aos agrotóxicos
- Cobertura de solo
- Produzido com resíduos agroindustriais
- Agregação de essência de pimenta
- Controle de pragas

ANÁLISE DA ESSÊNCIA DE PIMENTA IN VITRO

VARIÁVEIS ANALISADAS

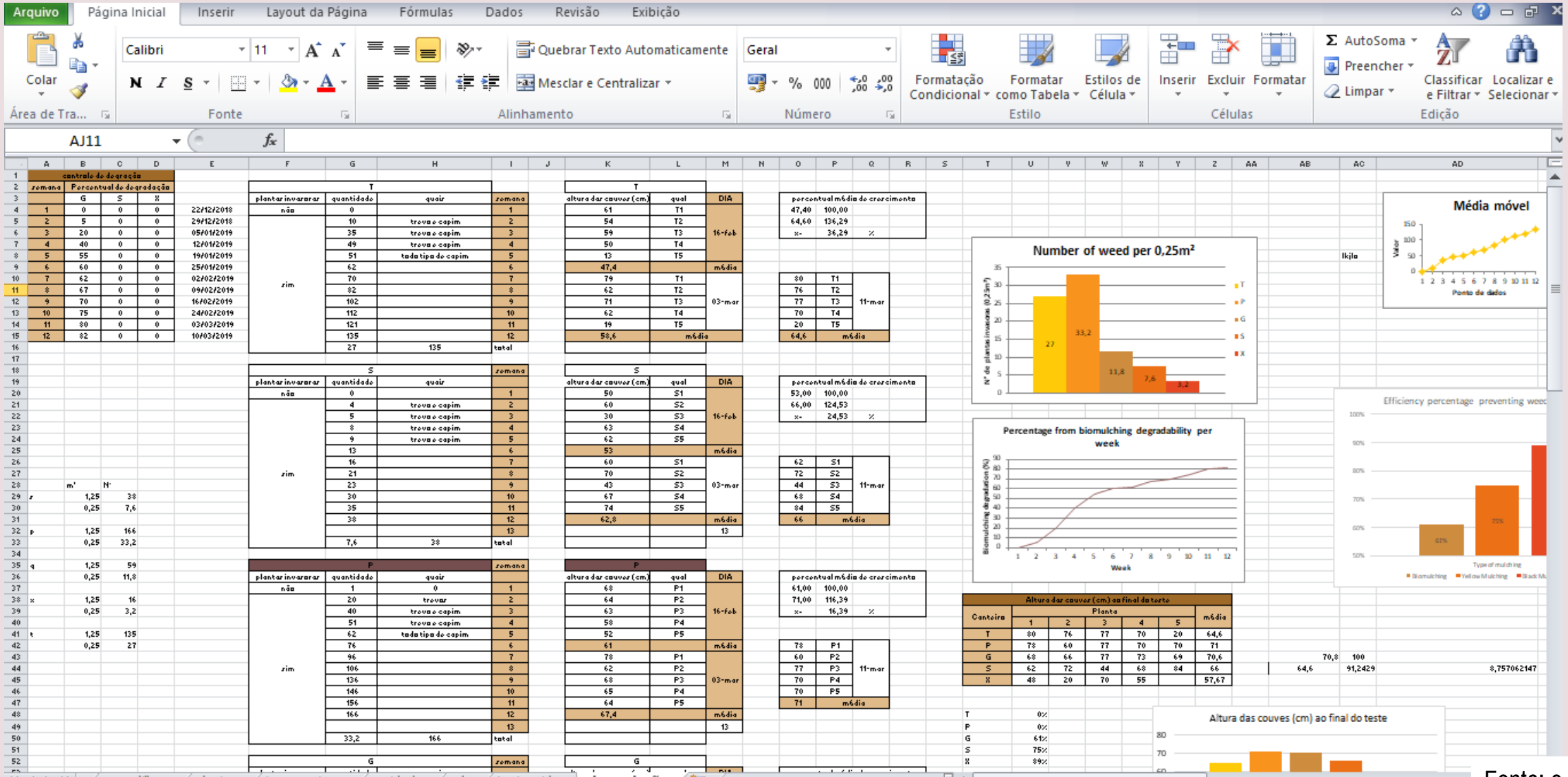
- Número de pulgões mortos
- Número de pulgões vivos
- Tempo de ação

TESTE EM PLANTAÇÃO DE COUVE

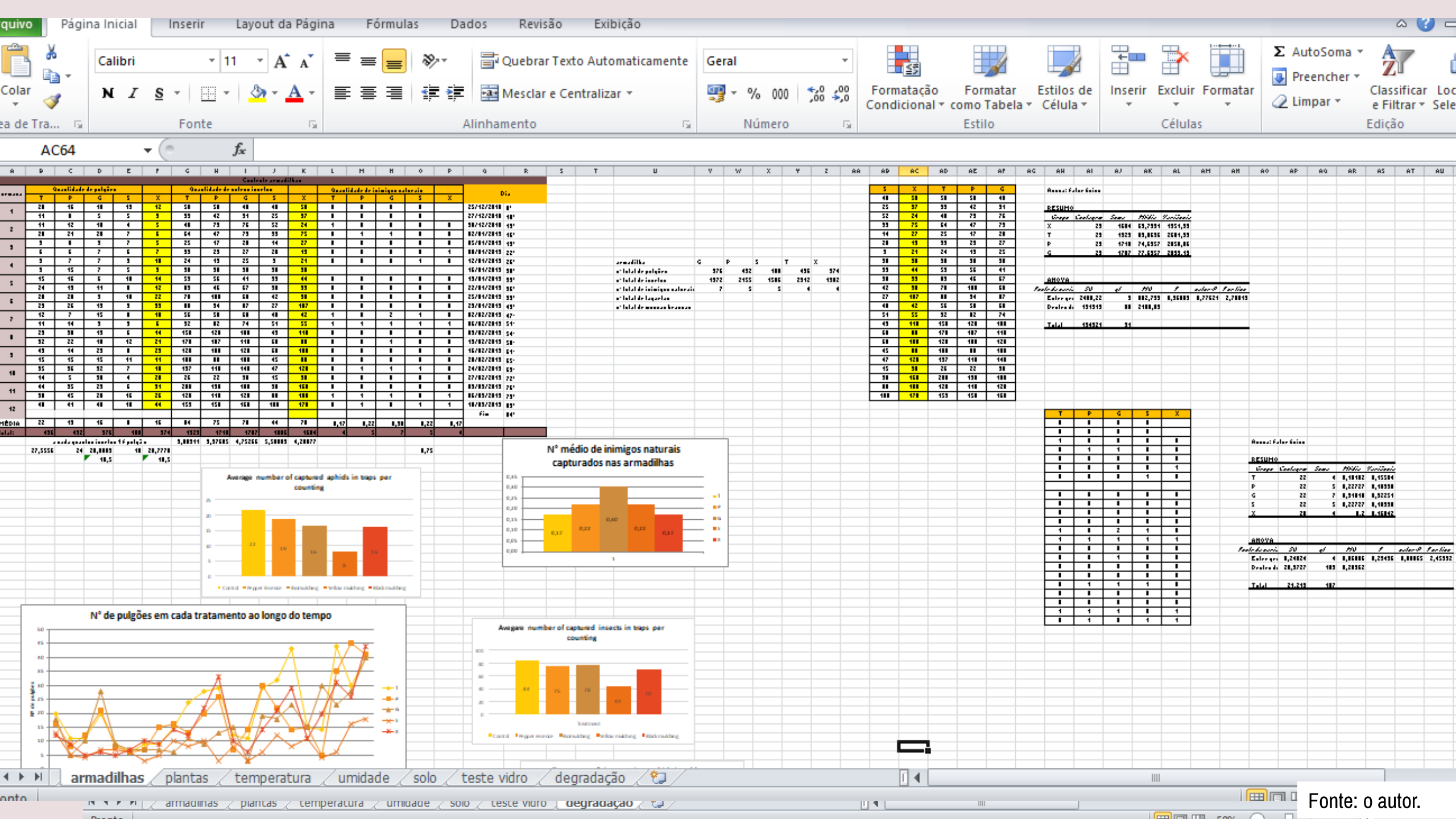
VARIÁVEIS ANALISADAS

- Temperatura
- Umidade do solo
- Umidade relativa do ar
- Número de pulgões e outros insetos
- Número de plantas invasoras
- Crescimento e rendimento das plantas
- Degrabilidade do *Biomulching*

ANÁLISE DOS DADOS - EXCEL



Fonte: o autor.



Fonte: o autor.

ERROS DE MANIPULAÇÃO DE DADOS ESTIMULAM O DEBATE SOBRE ENSAIO CLÍNICO:

NEWS

Data handling errors spur debate over clinical trial

On 6 May, the US stock market experienced a peculiar 'minicrash' when what seems to be a mishandled trading order temporary sent stocks plummeting. The dramatic episode on Wall Street underscores how small errors can substantially upset data-heavy systems, and deciphering the error afterward can be a seemingly impossible task.

The same holds true in the realm of increasingly data-intense biotechnology research—as is being made clear by concerns about data errors made by researchers at Duke University in Durham, North Carolina.

Four years ago, researchers from Duke published what was hailed as a groundbreaking paper in *Nature Medicine* (*Nat. Med.* **12**, 1294–1300, 2006). Using high-throughput microarray technology, they had examined how tens of thousands of genes might affect a patient's reaction to various combinations of chemotherapy drugs.

The study meant that cancer patients could begin to be prescribed chemotherapy regimes that would work best for their genetic predisposition, a major step forward for personalized medicine. The finding was so promising that a team from the Houston-based M.D. Anderson Cancer Center, specializing in what they call 'forensic bioinformatics', began to try to recreate the Duke team's data in hopes of doing similar work at their institution, says Keith Baggerly, who conducted the reexamination work with fellow researcher Kevin Coombes (*Nat. Med.* **13**, 1276–1277, 2007). To date, the team claims that they've spent more than 15,000 hours of work on the project.

The M.D. Anderson team found inconsistencies in the paper's findings, which was later determined to be the result of data-handling mistakes on the part of the Duke team. For example, in one instance, a label column in an Excel file was accidentally shifted, resulting in the entire set of data being mislabeled by one position. The Duke team openly admitted to making errors, including the 'one-off' mistake and other mislabeling errors, saying that these glitches did not affect the findings. The *Nature Medicine* paper was corrected online.

In December, Baggerly and Coombes published their analysis of the *Nature Medicine* paper and others by the Duke team. Baggerly and Coombes alleged that patients enrolled in clinical trials based on the Duke work might actually be receiving treatments that, according to their reanalysis, would be less effective for their genetic predisposition than indicated (*Ann. Appl. Stat.* **3**, 1309–1335, 2009).

Duke administrators quickly suspended three of these clinical trials and invited an outside group to examine their team's work. In January of this year, those trials resumed along with a note from the administrators assuring that the independent review had found no indication that the data errors had affected the overall findings or would put patients at risk.

However, Duke administrators refused to release the review. It was not until the publication *The Cancer Letter*, working with Baggerly, filed a Freedom of Information Act request to the National Cancer Institute that the document became public in mid-May—but much of the data is redacted.

The Duke researchers, Anil Potti and Joseph Nevins, say that the redaction is necessary to

Health reform unhealthy for pharma

The healthcare reform passed in the US in March will expand medical coverage and

Fonte: https://www.nature.com/articles/nm0610-618a

A ELEVADA DÍVIDA PÚBLICA SUFOCA CONSISTENTEMENTE O CRESCIMENTO DA ECONOMIA? UMA CRÍTICA À REINHART E ROGOFF

Does High Public Debt Consistently Stifle Economic Growth? A Critique of Reinhart and Rogoff

Thomas Herndon* Michael Ash Robert Pollin

April 15, 2013

JEL CODES: E60, E62, E65

Abstract

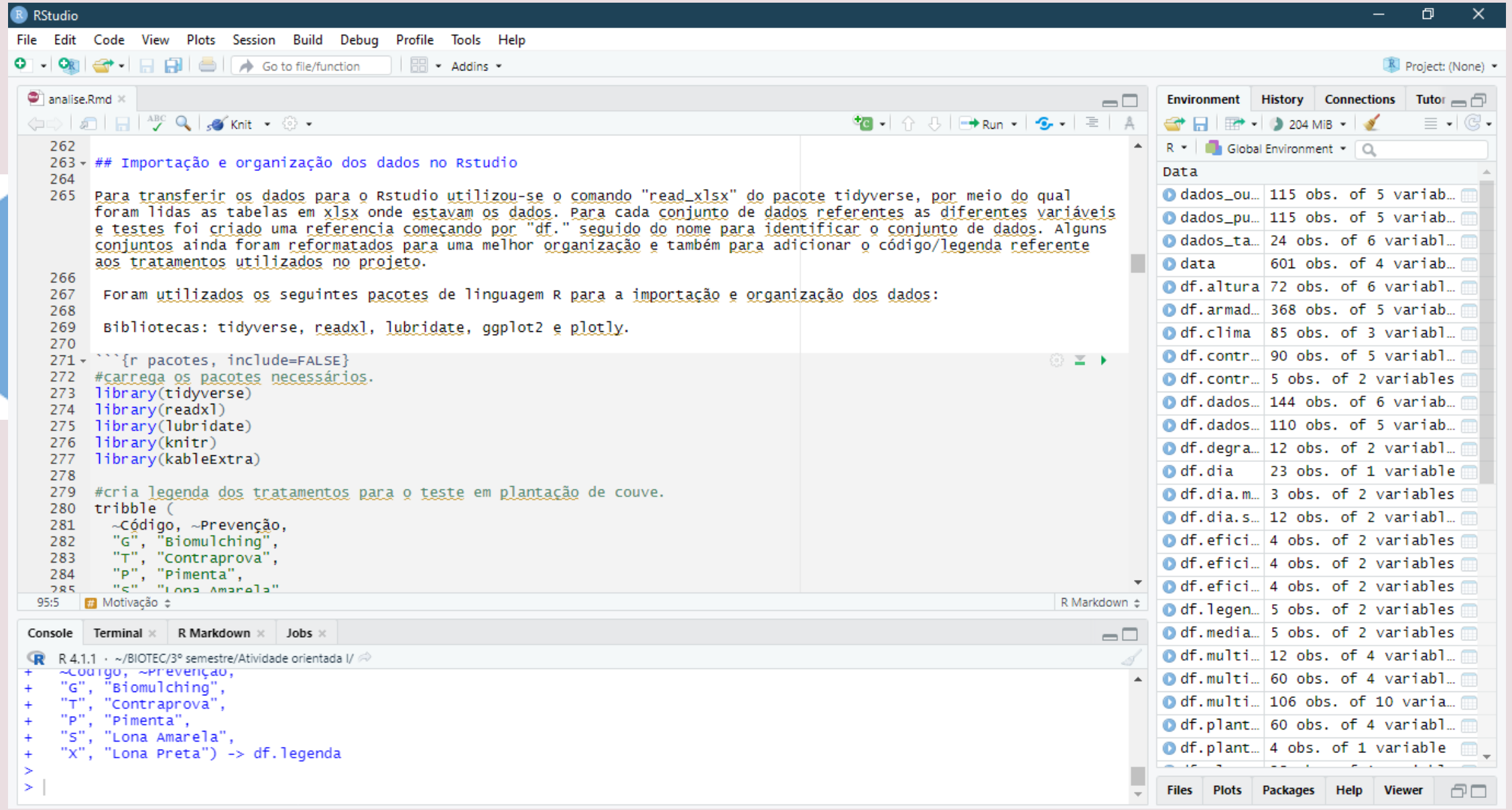
We replicate Reinhart and Rogoff (2010a and 2010b) and find that coding errors, selective exclusion of available data, and unconventional weighting of summary statistics lead to serious errors that inaccurately represent the relationship between public debt and GDP growth among 20 advanced economies in the post-war period. Our finding is that when properly calculated, the average real GDP growth rate for countries carrying a public-debt-to-GDP ratio of over 90 percent is actually 2.2 percent, not −0.1 percent as published in Reinhart and Rogoff. That is, contrary to RR, average GDP growth at public debt/GDP ratios over 90 percent is not dramatically different than when debt/GDP ratios are lower.

We also show how the relationship between public debt and GDP growth varies significantly by time period and country. Overall, the evidence we review contradicts Reinhart and Rogoff's claim to have identified an important stylized fact, that public debt loads greater than 90 percent of GDP consistently reduce GDP growth.

Fonte: http://peri.umass.edu/fileadmin/pdf/working_papers/working_papers_301-350/WP322.pdf

PROGRAMAÇÃO LITERAL

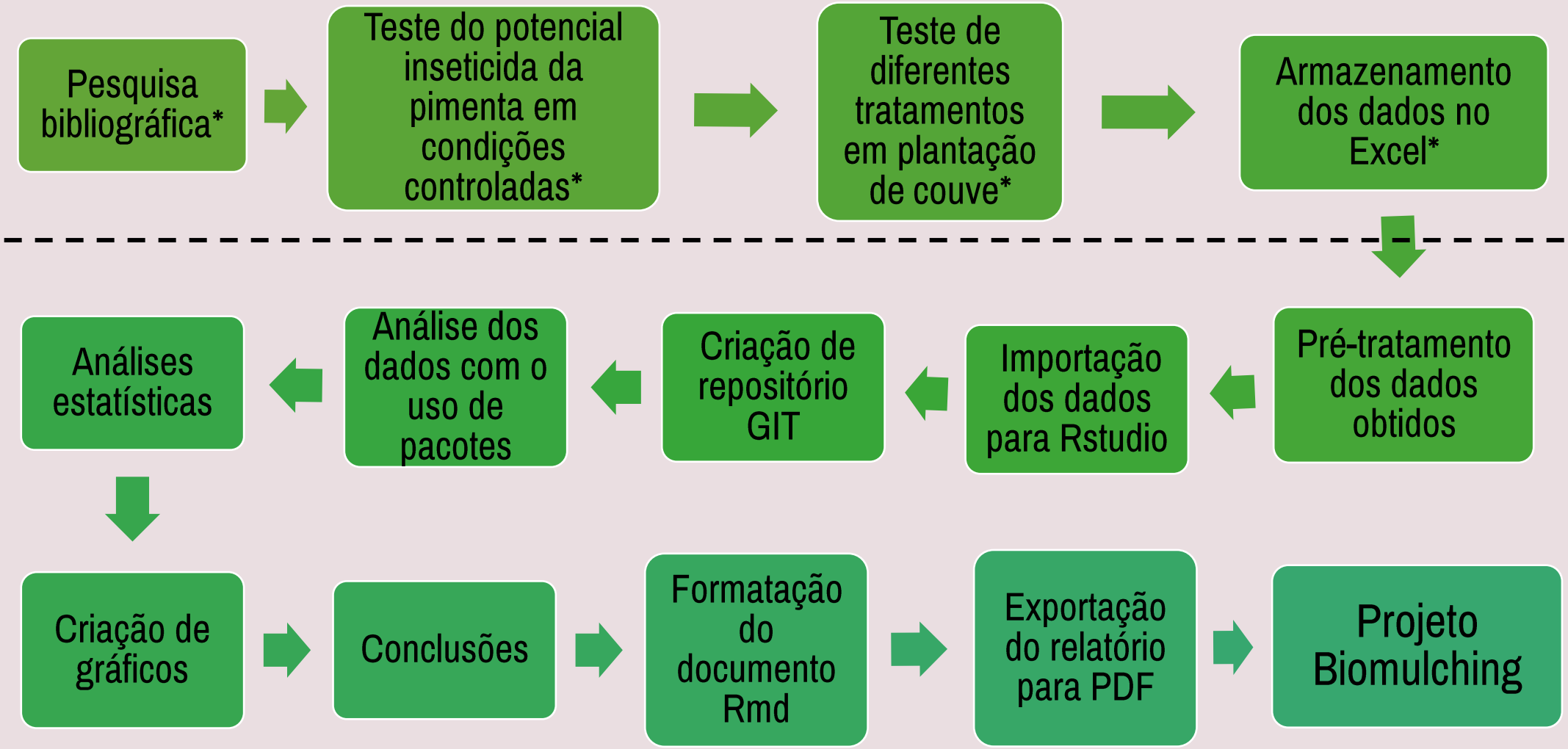
Fonte: o autor.



Fonte: o autor.

METODOLOGIA

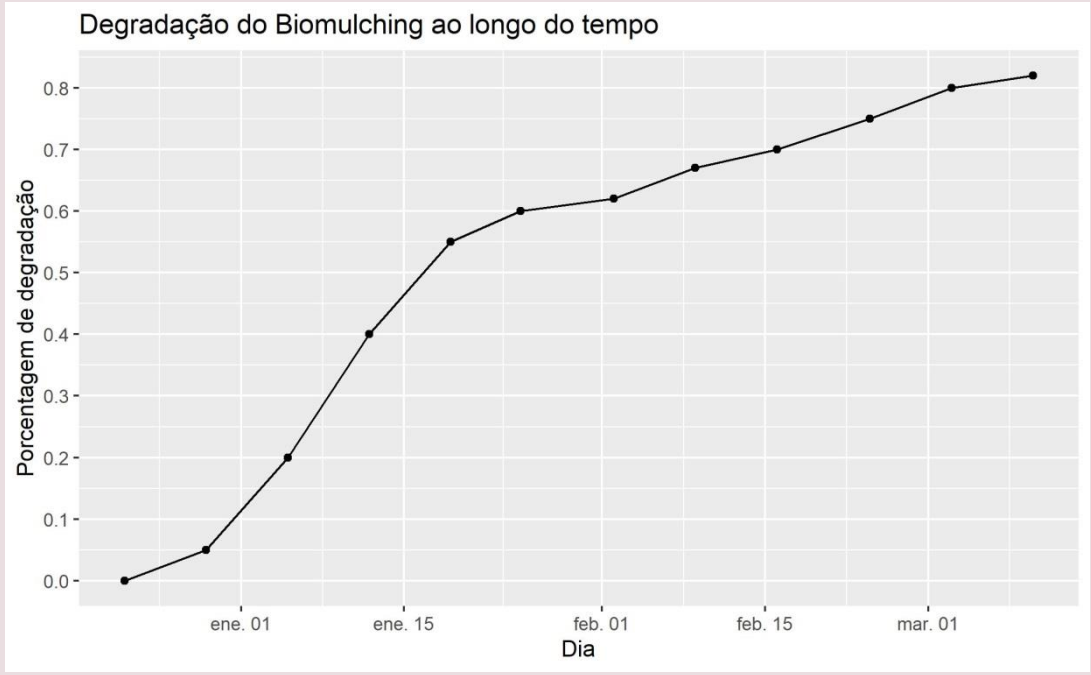
*Etapas realizadas anteriormente no projeto do *Biomulching*



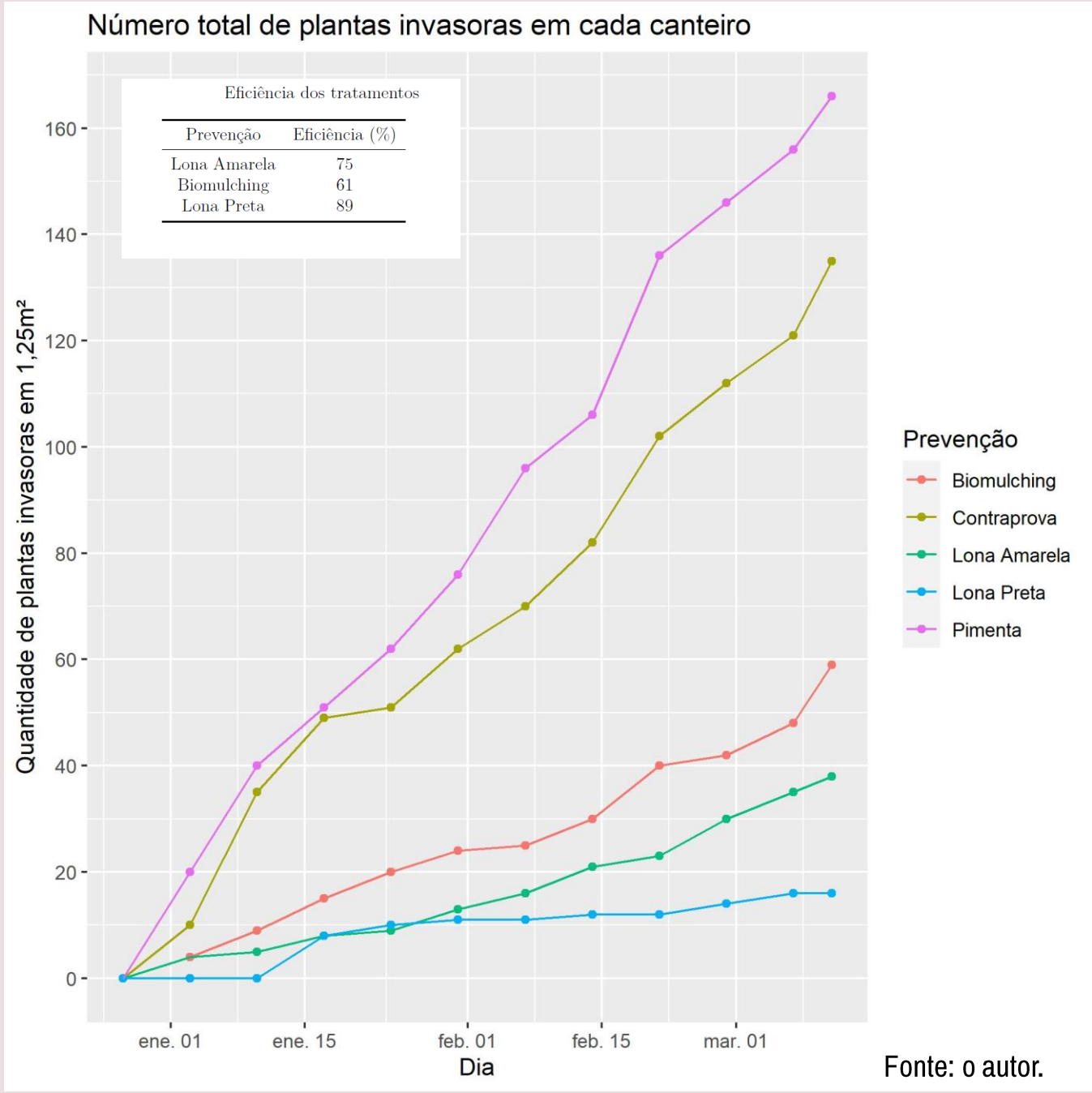
Fonte: o autor.

RESULTADOS

Cobertura de solo



Fonte: o autor.



Fonte: o autor.

Controle de pragas

Rendimento de cada canteiro

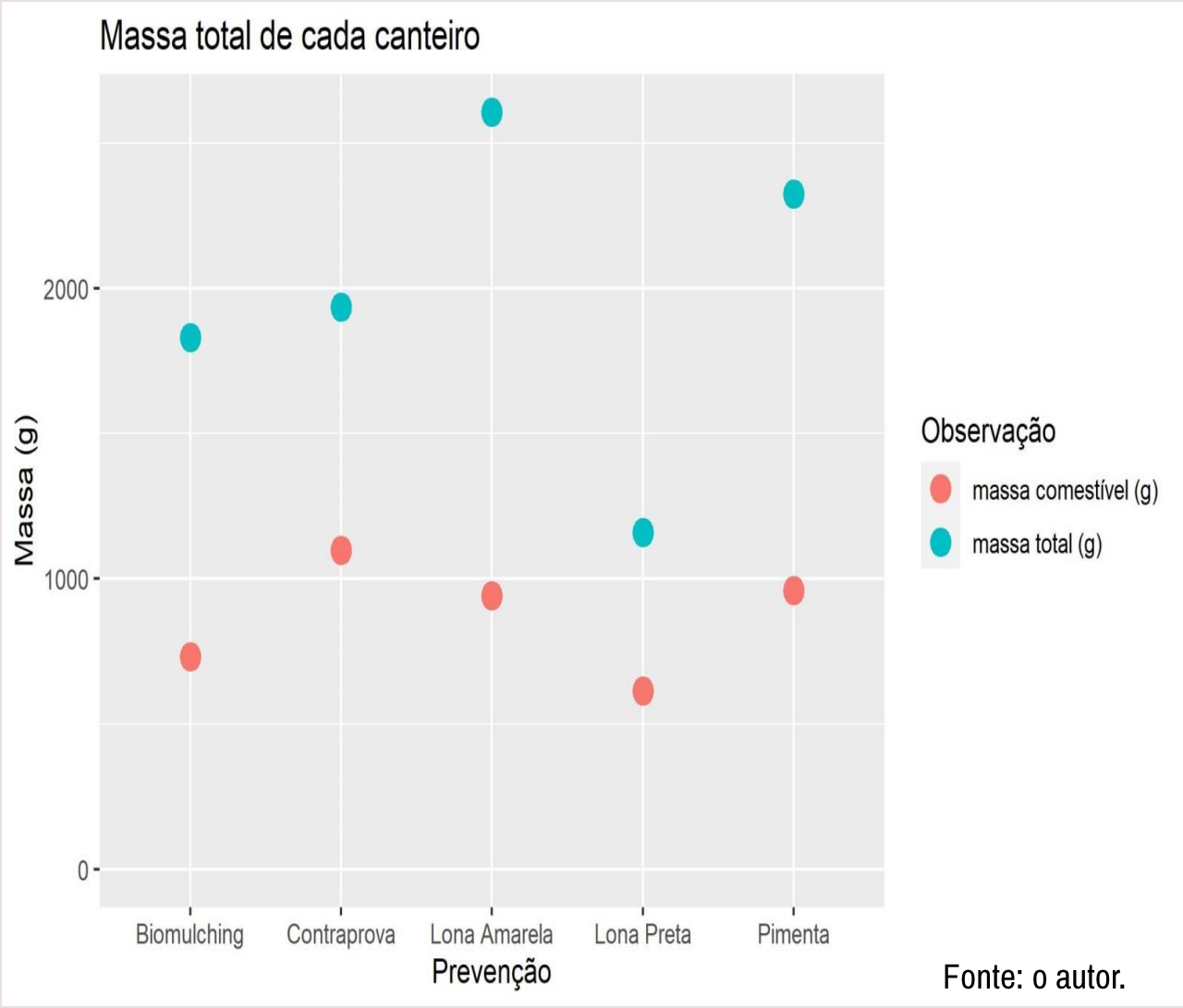
Prevenção	Massa comestível (g)	Massa total (g)	Rendimento (%)
Biomulching	733	1831	40
Contraprova	1099	1937	57
Lona Amarela	942	2607	36
Lona Preta	614	1161	53
Pimenta	959	2326	41

Fonte: o autor.

Eficiência contra diferentes pragas alvo

Prevenção	Eficiência lagartas (%)	Eficiência moscas (%)	Eficiência pulgões (%)	Eficiência outros (%)
Lona Amarela	-50	0	64	48
Lona Preta	25	58	25	17
Biomulching	25	31	24	7
Pimenta	50	38	13	11

Fonte: o autor.



Fonte: o autor.

USO DO RSTUDIO E PROGRAMAÇÃO LITERAL

Pontos positivos

- Confiável, código aberto e gratuito
- É possível testar vários códigos e modelos com poucas modificações
- Fica tudo registrado (o passo a passo do desenvolvimento)
- Autoexplicativo (se você explicar)
- É uma ferramenta muito versátil
- Funciona em outros computadores

Pontos negativos

- Um pouco difícil no início
- Pontuação e espaçamentos influenciam na execução do Rmarkdown
- Não possui corretor ortográfico para o português
- Um pouco chato de formatar os arquivos para exportar (ex: PDF)

CONCLUSÃO

- Reproduzimos a maioria dos resultados
- Foi possível corrigir algumas análises
- O uso de repositório GIT evita a perda de dados

Comentários e sugestões são bem-vindos

Todo esse trabalho está disponível no meu github
Link: https://github.com/Mateocool/atividade_orientada

- Relatório de pesquisa reprodutível focado no biomulching
- Link:

- Vídeo do projeto do Biomulching “Estudo da agregação de extratos naturais à biomulching como forma de prevenção e controle de pragas”
Link: https://youtu.be/Lfx8N3euJvA