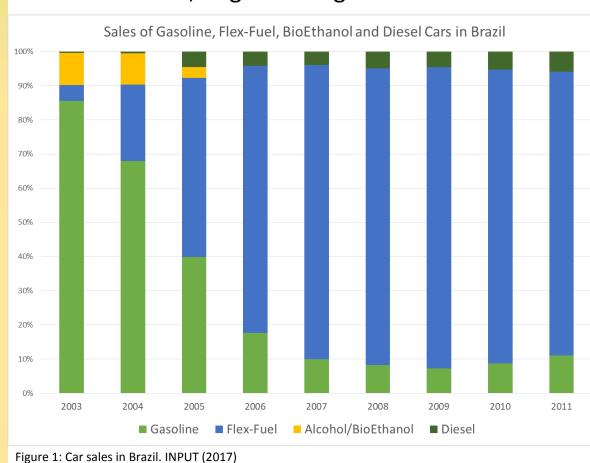# Jumping on the Brazilian Bandwagon: Biofuels and Deforestation of the Amazon

Sandra Young and Robin Talbot

Introduction: Brazil holds significant areas of Amazonian rainforest, with almost 60% of its land area forested, yet has been able to make a major contribution to the development of biofuels, begun during the oil crisis of the 1970s.

Figure 1: Car sales in Brazil. INPUT (2017)

Here we can see the proportion of flex-fuel private vehicles being used across Brazil.

Biofuels are accused of driving up food prices but also potentially for economic development.

In 2018 the Brazilian Government proposed to open up areas of the Amazon for development (previously protected from this sort of development) with PLS 626/2011, potentially exposing the Amazon to further deforestation. The bill was shelved as a result of backlash from civil society and academia, but is biofuel an important driver of deforestation now? And what does the news say?

Literature Review:

Biofuels much criticised in the popular press as increasing food prices (Hira et al. 2009)

Some analysis suggests that biofuel expansion is at the expense of subsistence crop areas, affecting the poorest members of society (Feres, *et al.* 2010)

The recent soaring food prices worldwide (2013) is attributed by some to the supposed prioritization of biofuels production, which, in addition, is blamed, in the case of Brazil, for contributing further to the deforestation of the Amazon. This despite the continuous decrease in deforestation and sugar cane for ethanol production occupying less than 1.5% of the Brazilian crop area (Pinguelli *et al.* 2013).

Historically cattle production had been the main driver for deforestation (Silva Junior & Lima 2018).

Sugarcane is not the sole biofuel crop grown in Brazil. Soy is grown for animal feed and biodiesel.

The pace of deforestation has decreased in recent years and it can be monitored using satellite imagery, available since 1988 (Polain de Waroux *et al*. 2017). There is a continuing trend to focus on soy(a) linked with deforestation and land use change. However, indirect land use change is not immediately obvious (de Sa *et al.* 2013). Biofuel may not directly cause deforestation.

This collaborative research project attempted to perform an overview of the literature to build a picture about biofuel production in Brazil, along with corpus-driven analysis to compare this with the discourse in media publications.

At a time in which fake news often takes centre stage – how faithful is the message about biofuels that we receive through the news?

Methods:

- Corpus-driven approach (Tognini-Bonelli 2001)
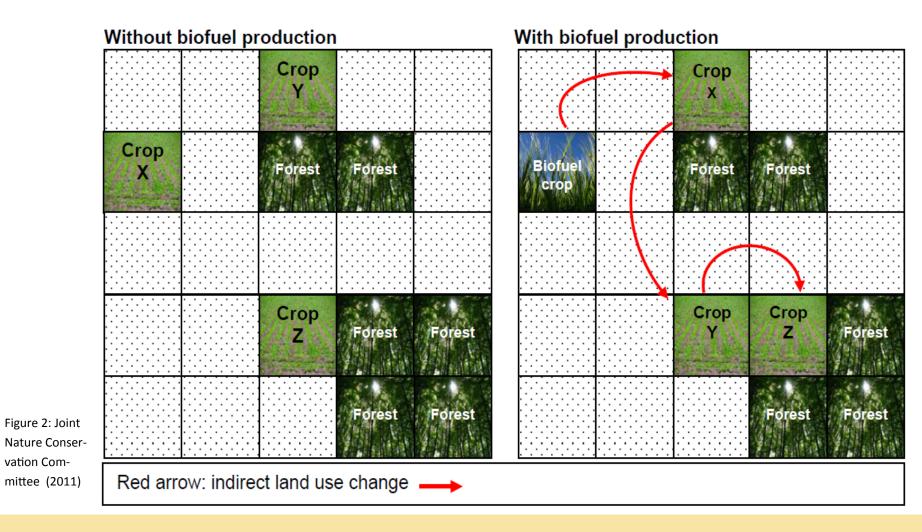- Sketch Engine corpus query tool (Kilgarriff *et al.* 2004)

Analysis techniques:
- Word frequency lists
- Word sketches (Kilgarriff *et al. 2010*)
- Concordances

Corpus:
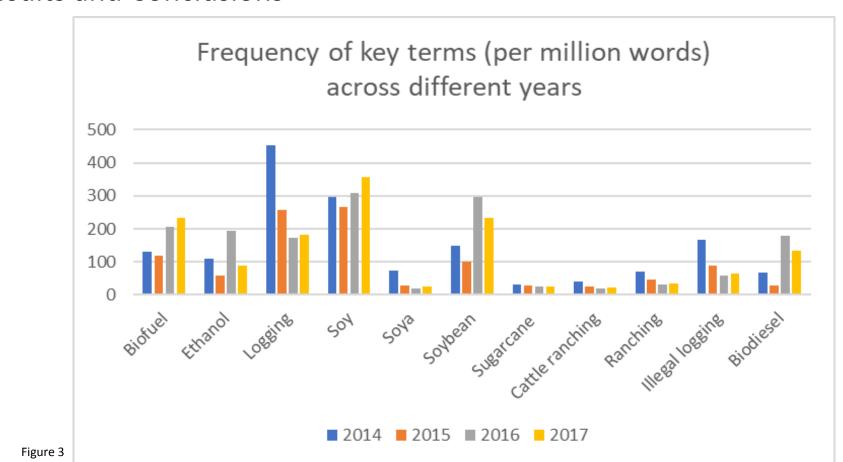- JSI timestamped corpus for each year 2014-2018, seed words "deforestation" and "Brazil"

However, current pasture or arable land is used for biofuel crops and therefore may induce deforestation (Feres, *et al.* 2010). Figure 2 graphically demonstrates the way biofuels may cause deforestation. Further intensification of current cultivated pasturelands, in an effort to increase productivity, would meet demands for meat, crops, wood products and biofuels until 2040 (Strassburg *et al*. 2014).

Despite the increase in production and use of bioethanol no food shortages have ever arisen (De Souza Ferreira Filho & Horridge 2014)

Figure 2: Joint Nature Conservation Committee (2011)

Results and Conclusions

Figure 3

- High frequency of mentions of soy(a) although contexts seem not to focus specifically on deforestation—further research to investigate contexts
- High frequency but large drop in logging mentions—further research to investigate why
- Definite links relating to cattle ranching, illegal logging and agriculture being drivers of deforestation
- Central discourse across corpus as a whole seems to be more related to deforestation and climate impacts, trying to curb and the successes and failures of that, but requires more research

- Most commonly used to describe attempts to reduce deforestation, but in 2017 also start to see relations with acceleration and also explosion, indicating possible reversing trends
- In 2014 degradation most related context word, whereas this is still important in 2017, overgrazing appears where wasn't before
- 2014 can see links between deforestation and emissions whereas this is less salient in 2017

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