SOY MORATORIUM

Crop year 2018/19

MONITORING
NON-COMPLIANT SOY
PLANTATIONS USING
SATELLITE IMAGES

ABIOVE

GRUPO DE TRABALHO DA SOJA
GTS

INPE

agrosatélite
applied geotechnology

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EXECUTIVE SUMMARY

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The Soy Moratorium completed 13 years in the 2018/19 crop year, and it continues to be a highly relevant initiative for sustainable soy production in the Amazon Biome, for both the domestic and the international markets.[1,2] The initiative's main objective is to ensure that the soy produced and traded in the Amazon Biome is not associated with the suppression of forest vegetation. It should be emphasised that the Moratorium does not inhibit soy expansion in the Amazon, but encourages planting in areas that were cleared before 2008, thus avoiding conversion of forest to soy crops and reconciling agricultural development with environmental preservation. The Moratorium's efficacy is evident through the gradual soy expansion of almost four million hectares over the last thirteen years, with only a residual area deforested in the Amazon Biome.[3,4]

The Soy Moratorium was implemented on 24th July 2006; however, when the Forest Code[5] was approved in 2012, the reference date was changed to 22nd July 2008. The Moratorium's governance and operation are the responsibility of the Soy Working Group (GTS), formed by the member companies of ABIOVE and ANEC, and by civil society organisations.

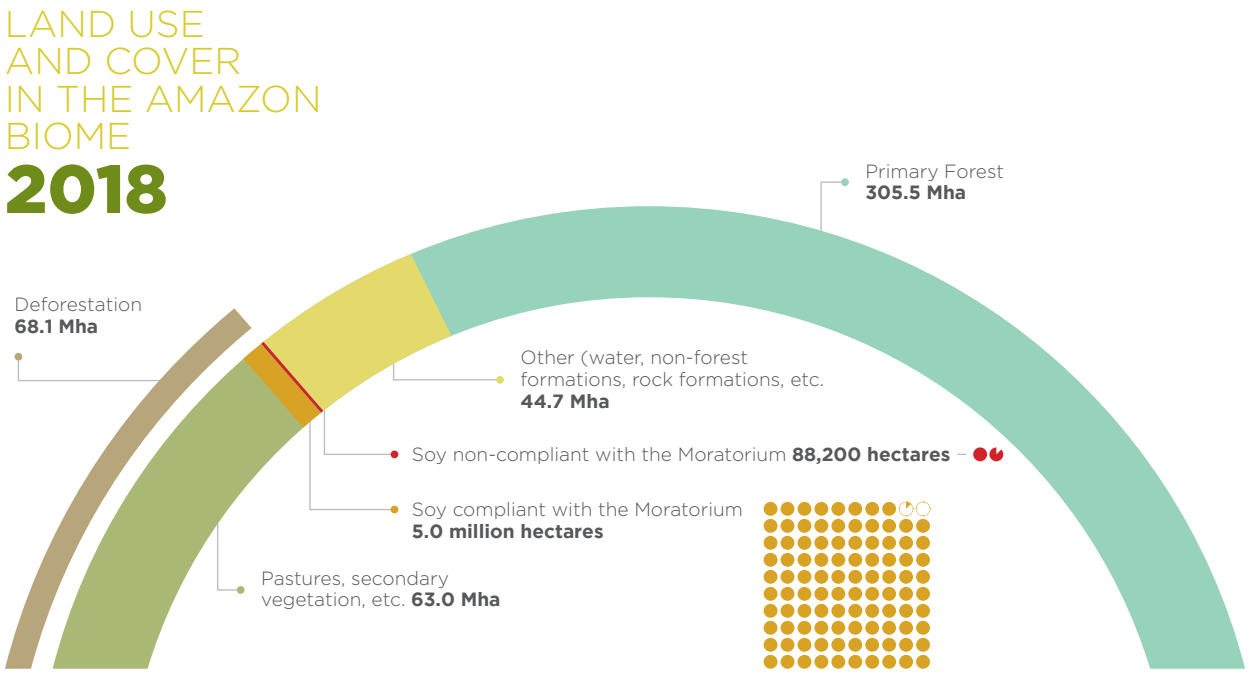
Deforestation after 22nd July 2008 of areas planted with soy in the 2018/19 crop year was identified through a stringent monitoring process, using satellite images to pinpoint which soy plantations did not comply with the Soy Moratorium.

In the Amazon Biome, 98% of the soy production area is located in the 95 municipalities that make up the area monitored during the 2018/19 crop year, distributed among seven states:

Mato Grosso, Pará, Rondônia, Roraima, Amapá, Maranhão and Tocantins. Based on the annual analyses of the Programme to Calculate Deforestation in the Brazilian Amazon (PRODES[6]), made by the National Space Research Institute (INPE), deforestation in the Amazon Biome between 22nd July 2008 (the Soy Moratorium reference date) and the 2018 PRODES evaluation was 5.97 million hectares. Of this total, about 1.84 million hectares were located in these 95 municipalities, where 88,234 hectares of soy were identified as being non-compliant with the Moratorium.

This non-compliant area corresponds to 1.8% of the total soy area for the 2018/19 crop year in the Amazon Biome and to 4.8% of the total deforestation in these 95 soy-producing municipalities. In other words, 95.2% of the deforestation in these municipalities during the Soy Moratorium was not associated with conversion of forest to soy. It should be highlighted that just twelve municipalities concentrate 68% of the soy production that does not comply with the Moratorium.

This report describes the methodology used and presents the results of soy monitoring in the Amazon Biome for the 2018/19 crop year, in the context of the Soy Moratorium. In item-8 - Appendix there are detailed information on the deforested polygons containing soy that did not comply with the Moratorium for this crop year..



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ACRONYMS

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ABIOVE – Brazilian Association of Vegetable Oil Industries

AGROSATÉLITE – Agrosatélite Applied Geotechnology Ltd.

ANEC – National Grain Exporters Association

FUNAI – National Native Indians Foundation

GTS – Soy Working Group

IBGE – Brazilian Geographic & Statistical Institute

INCRA – National Colonisation & Agrarian Reform Institute

INPE – National Space Research Institute

PPCDAm – Action Plan for Prevention & Control of Deforestation in Legal Amazon

PRODES – Programme to Calculate Deforestation in the Brazilian Amazon

1 INTRODUCTION

INTRODUCTION

The Soy Moratorium is a commitment to produce deforestation-free soy in the Amazon Biome, promoting environmental sustainability in the Soy Chain of both the domestic and the international markets. The 2012 Forest Code holds rural producers responsible for a considerable portion of the native vegetation on their properties, and the Soy Moratorium reinforces Brazil's environmental legislation to prioritise soy planting in areas deforested prior to the Moratorium, thereby eliminating new deforestation for soy in the Amazon Biome.

The Soy Moratorium was signed on 24th July 2006 but, when the new Forest Code[5] was sanctioned on 25th May 2012, the Moratorium's reference date was changed to 22nd July 2008, starting with the 2012/13 crop year. Over the Moratorium's thirteen years, the procedure for monitoring soy in deforested areas has gradually been perfected by incorporating the technological advances, with emphasis on using remote sensing satellite images to map soy in the Amazon Biome[4], thus improving the identification of the soy-producing municipalities in the Amazon Biome. The incorporation of new tools to analyse these images enables more accurate evaluation of the deforestation date, as well as the identification of soy in rural properties.

Monitoring in the context of the Soy Moratorium uses a vast set of remote sensing satellite images obtained through sensors with complementary spatial and temporal resolutions. These images are carefully analysed by an experienced team of interpreters. As the Moratorium is restricted to private rural properties, the analyses made during the monitoring process are complemented by the PRODES database[6] of deforestation in the Amazon Biome during the period of the Moratorium, in addition to the databases of the following institutions: Agrosatélite[4], FUNAI[7], Ministry of the Environment[8], IBGE[9] and INCRA[10].

2 SCOPE OF THE STUDY

SCOPE OF THE STUDY

The scope of this study is the identification and mapping of the occurrence of soy in the 2018/19 crop year, in areas of the Amazon Biome that were deforested after 22nd July 2008.

The specific objective of this study is to use remote sensing satellite images to map the soy crops in the 2018/19 crop year that were identified in areas deforested after 22nd July 2008 (PRODES 2009 to 2018), on private rural properties located in municipalities with soy planted area equal to or greater than 5,000 hectares in the Amazon Biome.

Landsat-8

3 METHODOLOGY

METHODOLOGY

In the first stage of this study, the municipalities representing about 98% of the soy area in the Amazon Biome were selected. Next, the deforestation polygons mapped by PRODES since the beginning of the Soy Moratorium were selected. Finally, the soy in these deforested areas were identified and mapped through remote sensing satellite images. The detailed methodology is presented below.

3.1 – Definition of the study area

The first step in defining the study area was to update the prior crop-year's list of 95 municipalities with a soy area equal to or larger than 5,000 hectares, representing 98% of the soy area in the Amazon Biome. The remaining 2% are distributed in other 77 municipalities.

The list of municipalities was updated based on Agrosatélite's mapping of soy areas in the Amazon Biome for the 2016/17 crop year[4] and on data from IBGE. The municipality of Denise (Mato Grosso state) was excluded and the municipality of Porto Velho (Rondônia state) was included. Denise was excluded due to a recent alteration in its municipal boundary with Tangará da Serra, lowering Denise's soy area to below 5,000 hectares for the 2018/19 crop year. Furthermore, in prior years, no soy area in this municipality was found to be non-compliant with the Soy Moratorium. The municipality of Porto Velho was included in the list as it has recently expanded its soy area to over 5,000 hectares. Of the municipalities selected, 57 are in Mato Grosso state, 16 in Pará state, eleven in Rondônia state, three in Roraima state, two in Amapá state, three in Maranhão state and three in Tocantins state.

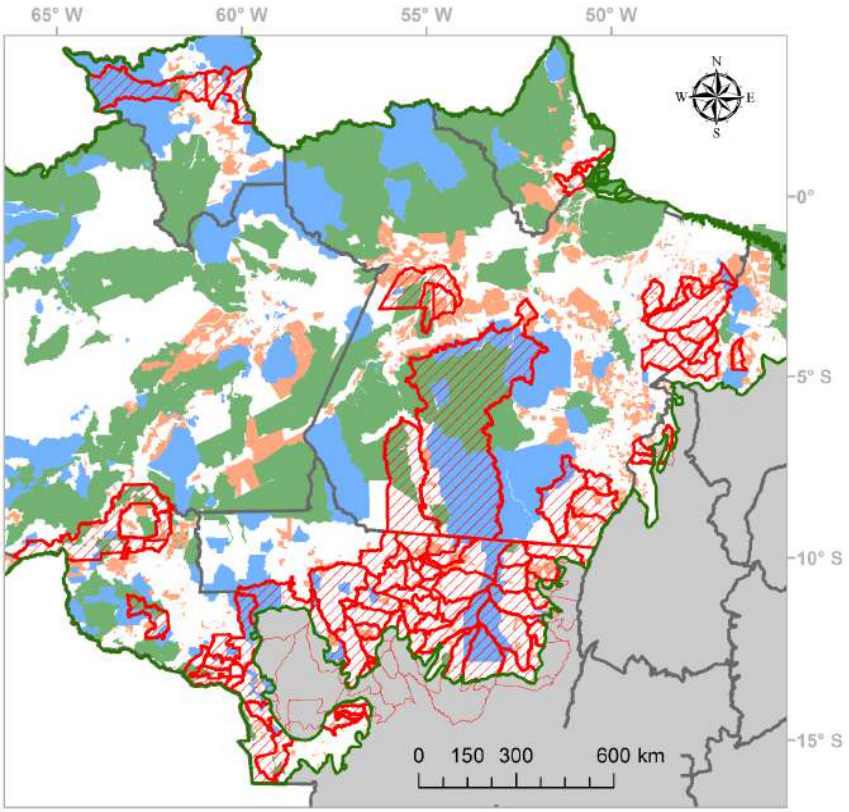
The second step in defining the study area was the selection of the polygons mapped by PRODES[6], which was based on the following criteria:

1. The polygon was wholly or partially located in the Amazon Biome (source: IBGE)[2];
2. The polygon was wholly or partially located in at least one of the 95 municipalities with over 5,000 hectares of soy[5];
3. The polygon was in private rural property located wholly or partially outside indigenous lands[7], Conservation Units[8] and settlements[10]; and
4. The polygon had an area greater than 25 hectares after aggregation of adjacent polygons (Item 3.3).

Figure 1 shows the geographic distribution of the 95 selected soy-producing municipalities, as well as the Conservation Units, indigenous lands and settlements used to define the range of the study area, according to the criteria listed above.

It should be noted that, in the case of municipalities only partially located in the Amazon Biome, the analysis of the data was restricted to that part of the polygon lying within the Biome.

FIGURE 1.
MONITORED AREA OF THE 95 SELECTED MUNICIPALITIES



MT – 57 municipalities
PA – 16 municipalities
RO – 11 municipalities
RR – 3 municipalities
AP – 2 municipalities
MA – 3 municipalities
TO – 3 municipalities

Legend

- Amazon Biome boundary
- State boundary
- Boundary of selected municipalities
- Monitored area
- Settlements
- Indigenous lands
- Conservation Units

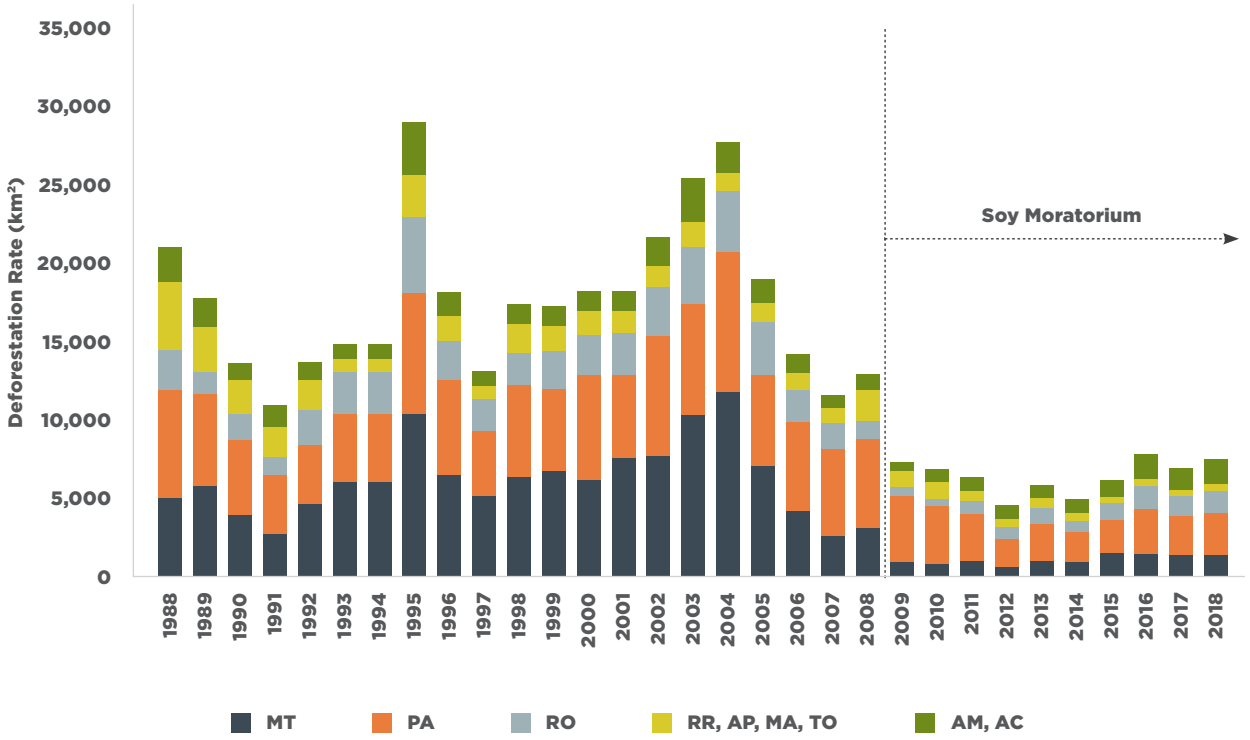
3.2 – Deforestation mapped by PRODES

Since 1988, PRODES[6], a programme developed and executed by INPE, with the objective to map deforested areas and calculate annual deforestation rates in the Legal Amazon. The results of this mapping are available online, through a georeferenced database containing the boundaries of deforested areas (polygons) and information on the year each polygon was deforested.

Figure 2 shows the deforestation rates in Legal Amazon calculated by PRODES, highlighting the period before and after the Soy Moratorium reference date (22nd July 2008). As can be seen, there has been a significant fall in the Legal Amazon deforestation rates due to government intervention curbing illegal deforestation in the region through PPCDAm[11], created in 2004. The average annual deforestation rate over the last ten years was 6,494 km². Deforestation reached its lowest point of 4,571 km² in 2012, but has since shown a tendency to increase.

FIGURE 2.

DEFORESTATION RATES IN LEGAL AMAZON CALCULATED BY PRODES, HIGHLIGHTING THE YEARS BEFORE AND AFTER THE SOY MORATORIUM



Source: Adapted from INPE[6]

Table 1 shows the data supplied by PRODES mapping during the Soy Moratorium period, for the states of Mato Grosso, Pará, Rondônia, Roraima, Amapá, Maranhão and Tocantins. These data refer to deforestation only in the Amazon Biome, and does not include those parts of the Cerrado and the Pantanal Biomes that lie within Legal Amazon. The average annual deforestation rate in these states, in the period 2009-2018, was 496,907 hectares.

TABLE 1.

TOTAL ANNUAL DEFORESTATION IN THE AMAZON BIOME DURING THE SOY MORATORIUM, IN THE STATES OF MATO GROSSO (MT), PARÁ (PA), RONDÔNIA (RO), RORAIMA (RR), AMAPÁ (AP), MARANHÃO (MA) AND TOCANTINS (TO), IN HECTARES

State	Year of PRODES Mapping during the Soy Moratorium [i, ii, iii, iv]										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
MT	71,841	71,664	94,321	70,983	102,352	101,914	150,497	136,050	127,965	137,818	1,065,405
PA	355,732	341,788	255,202	172,610	213,457	182,990	288,568	284,444	260,218	263,098	2,618,107
RO	42,479	44,803	77,299	69,617	96,915	76,822	108,552	122,045	128,743	120,438	887,713
RR	11,124	24,268	13,174	10,801	15,364	19,056	23,617	24,913	12,575	8,475	163,367
AP	4,739	7,201	1,675	1,954	2,417	2,911	4,582	1,827	1,894	1,397	30,597
MA	45,563	25,317	18,087	13,483	16,054	13,944	17,146	13,896	15,494	8,150	187,134
TO	2,340	2,998	1,243	1,054	1,875	1,213	2,143	1,952	1,274	652	16,744
	533,818	**518,039**	**461,001**	**340,502**	**448,434**	**398,850**	**595,105**	**585,127**	**548,163**	**540,028**	**4,969,067**

Source: Adapted from INPE[6].

[i] PRODES identifies deforestation from August of one year to July of the following year;

[ii] The area is calculated based on maps made available by PRODES;

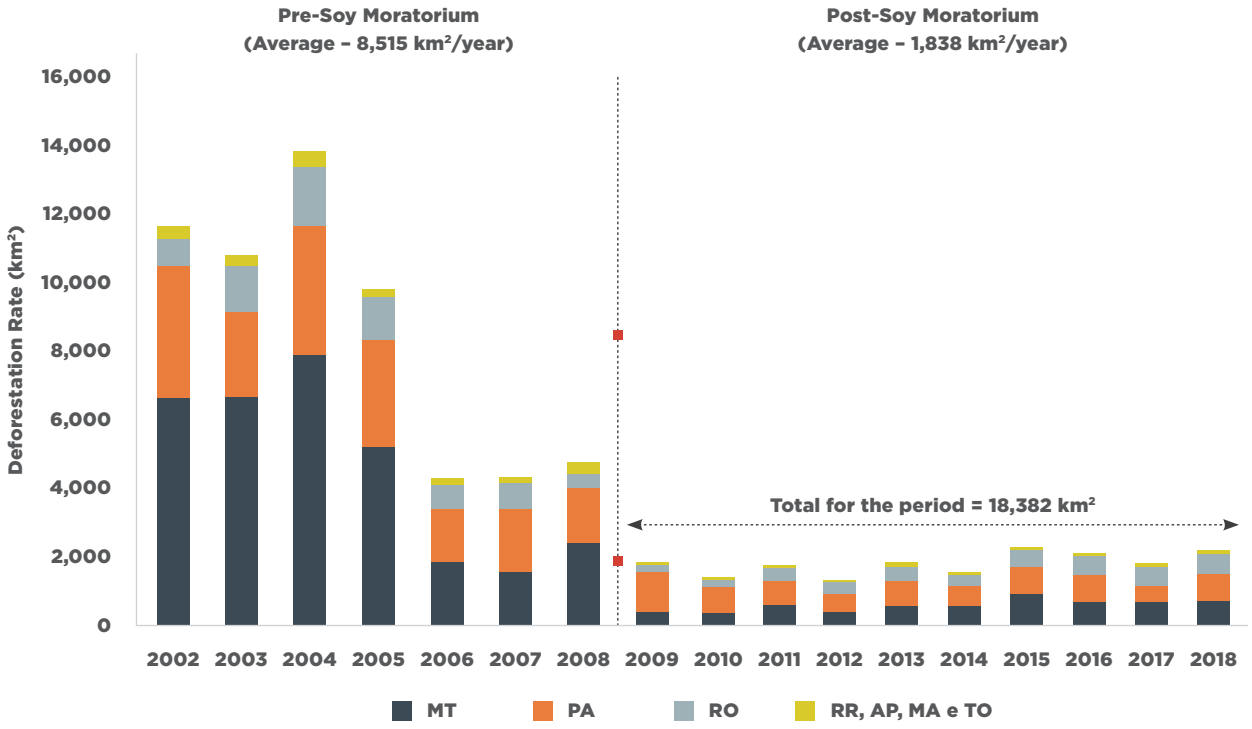
[iii] Only the deforested areas in Mato Grosso, Tocantins and Maranhão that lie within the Amazon Biome are included;

[iv] There are small differences when compared to prior years because the PRODES database was updated in 2017, generating some incompatibility between the databases.

Figure 3 shows the PRODES deforestation for the period 2002-2018, in the 95 municipalities in the Amazon Biome monitored by the Soy Moratorium in 2018/19. The graph indicates a sharp reduction in deforestation after the PPCDAm[11] was created in 2004, and another reduction after implementation of the Soy Moratorium. The average deforestation rates in these municipalities, identified by PRODES, fell from 8,515 km²/year in the period 2002-2008 (before the Moratorium) to 1,838 km²/year in the period 2009-2018 (after the Moratorium). In other words, the average rate has fallen 4.6 times during the Soy Moratorium. Furthermore, the share of the monitored municipalities in the total deforested area of Legal Amazon fell from 45% between 2002 and 2008, to 28% between 2009 and 2019. However, when compared to the prior year, deforestation in the 95 soy-producing municipalities increased 20.9%, while the increase in Legal Amazon was 8.5%. The soy-producing municipalities in Pará state were mainly responsible for this increase (Figure 3).

FIGURE 3.

DEFORESTATION RATES CALCULATED FROM PRODES DATA FOR THE 95 MONITORED MUNICIPALITIES IN THE AMAZON BIOME, HIGHLIGHTING THE YEARS BEFORE AND AFTER THE SOY MORATORIUM



Source: Adapted from INPE[6].

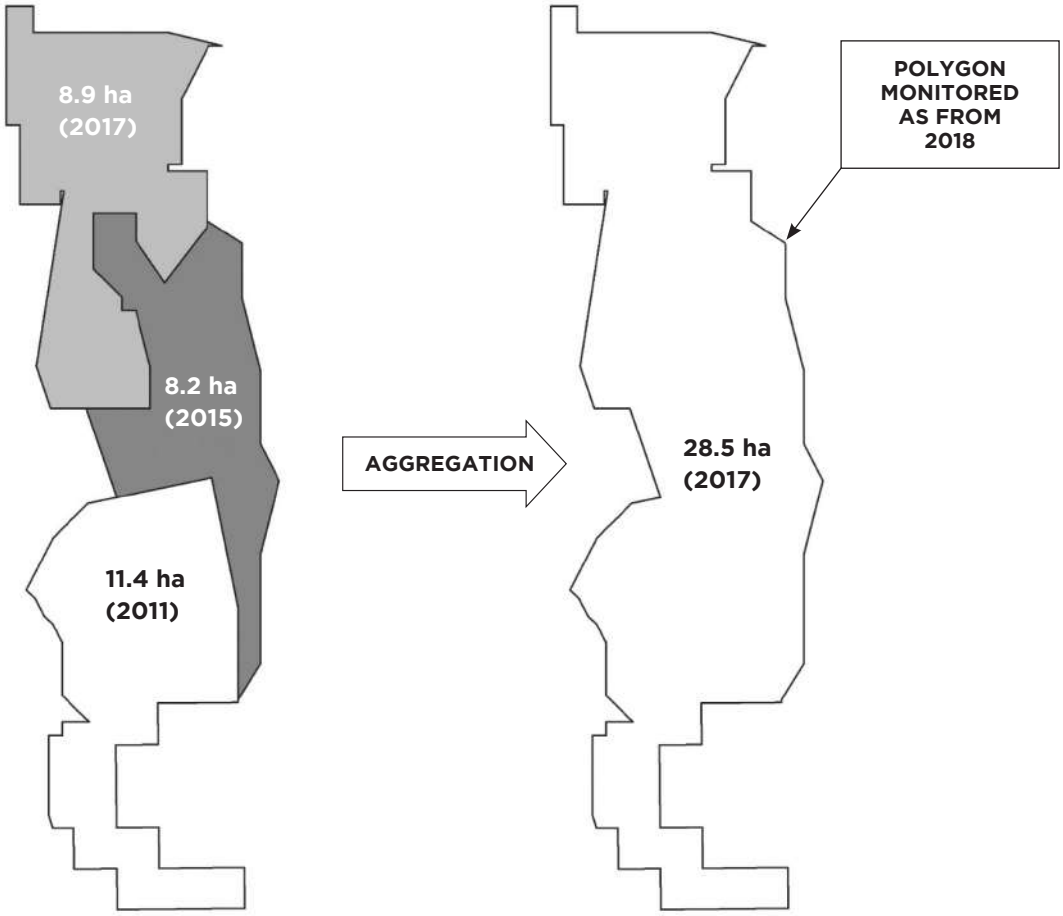
3.3 – Aggregation of adjacent deforested areas

Since soy is characterized as a large-scale crop in the Amazon Biome, the GTS established that the minimum deforested area to be monitored would be 25 hectares. Although significant deforestation occurs annually in areas with less than 25 hectares, they begin to be monitored when the sum of annual deforestation in adjacent areas is greater than or equal to 25 hectares, in the period after the Soy Moratorium. To exemplify, Figure 4 illustrates the aggregation of three adjacent polygons deforested in different years. Before aggregation, the individual polygons had less than 25 hectares, but with aggregation the polygons exceeded 25 hectares and were monitored in 2018.

3.4 – Identification of soy in deforested areas

FIGURE 4.

EXAMPLE OF AGGREGATION OF THREE ADJACENT POLYGONS MAPPED BY PRODES BETWEEN 2011 AND 2017, FORMING A SINGLE POLYGON WITH OVER 25 HECTARES



The combined analysis of remote sensing satellite images, acquired through sensors with different spatial resolutions, ensures the identification of soy fields in deforested areas monitored by the Soy Moratorium. For the current monitoring (2018/2019) approximately 100 images from the MODIS sensor aboard the Terra satellite were used, as well as some 783 images from the Landsat-7 and Landsat-8 satellites. In addition, 600 images from the Sentinel-2A and Sentinel-2B satellites were used.

The acquisition dates of the images took into account the soy calendar in the different regions being analysed. To monitor soy crops in the states of Mato Grosso, Rondônia and Tocantins, the images selected from the MODIS sensor were from the period from July 2018 to April 2019. In the states of Maranhão, Pará, Roraima and Amapá, because of the differences in the soy-planting date, the period for images acquisition was extended up to the end of August 2019.

The method used to detect the presence of soy was based on an indicator called *Crop Enhancement Index* (CEI[12]), which underlines the difference in the values of a vegetation indicator called *Enhanced Vegetation Index* (EVI[13]) at two specific moments in the soy calendar: a) in the off-season, before the soy-growing season starts, when EVI values for soy are relatively lower than those for regenerating forests or pastures (MinEVI, Figure 5); and b) when the soy is well developed and has higher EVI values than regenerating forests, cerrado or pastures (MaxEVI, Figure 5).

High CEI values indicate the presence of soy or, possibly, another annual crop with characteristics similar to soy. Regenerating forests and pastures, on the other hand, have low CEI values because of their smaller seasonal variations in EVI when compared to soy (Figure 5). As a result, the CEI enables differentiation between soy and other land uses and cover, such as regenerating forests and pastures.

FIGURE 5.

EXAMPLE OF TEMPORAL VARIATION IN EVI VALUES FOR: A1) EARLY SOY; A2) LATE SOY – ACCORDING TO THE MATO GROSSO AGRICULTURAL CALENDAR; B) FORESTS; C) REGENERATING FORESTS; AND D) PASTURES. ALSO SHOWN ARE THE PERIODS IN WHICH THE MINIMUM EVI (MINEVI) AND MAXIMUM EVI (MAXEVI) VALUES ARE OBTAINED TO CALCULATE THE CEI

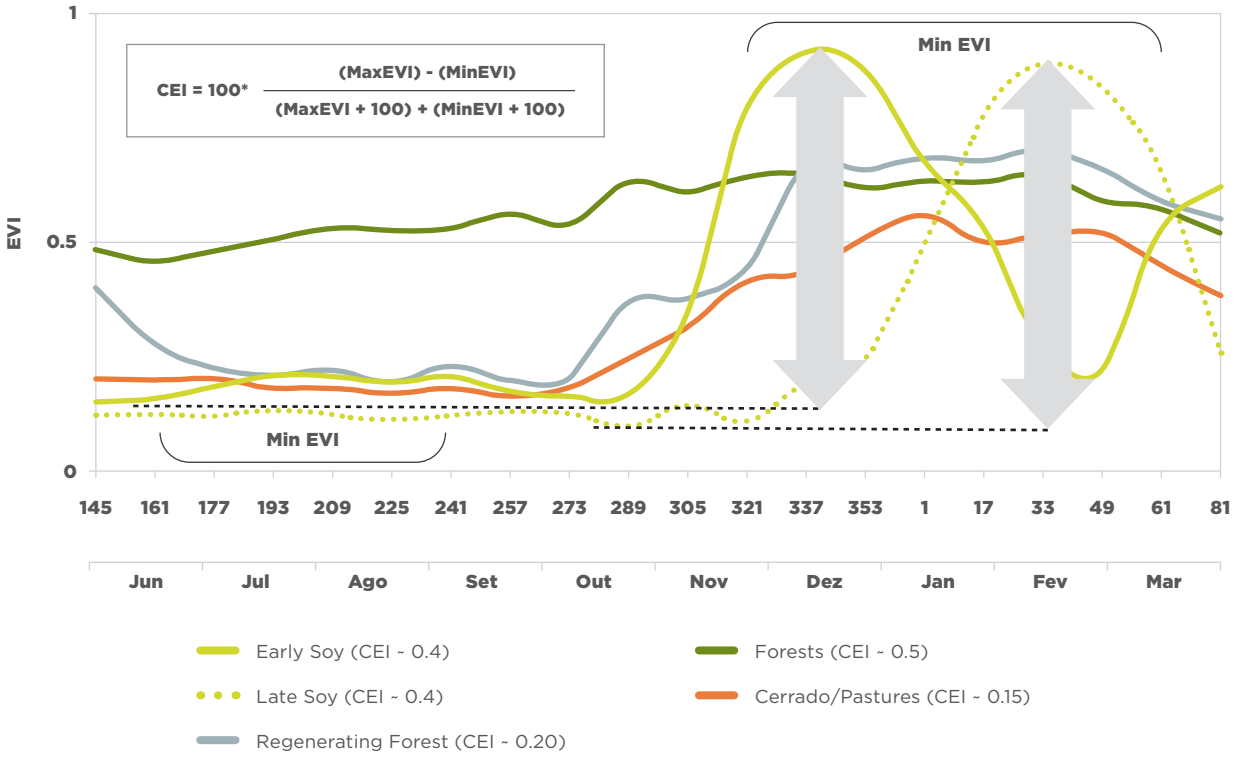


Figure 6 illustrates the sequence of the analysis and identification of soy in the satellite images. Figure 6a shows a CEI image with soy areas highlighted in dark blue, differentiating it from other targets in the image that do not have the characteristics of an annual crop. Figure 6c shows a detail of this CEI image, where two deforested polygons can be seen: one with a low CEI value (light green), without the presence of an annual crop, and the other with the presence of an annual crop (dark blue). Confirmation that the annual crop was soy was made, in this case, with an OLI/Landsat-8 image acquired on 13th January 2019, in which 721 hectares of soy were identified and mapped in this deforested polygon, as shown in Figure 6d.

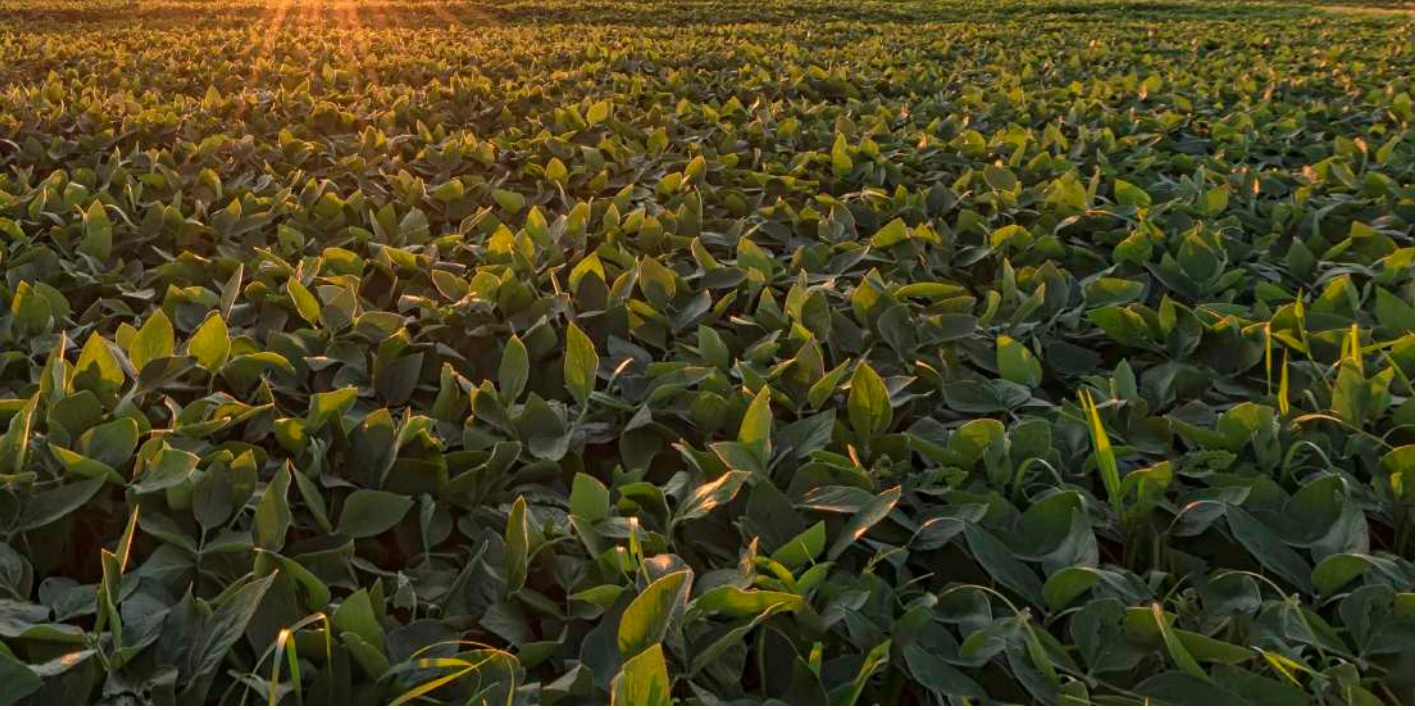
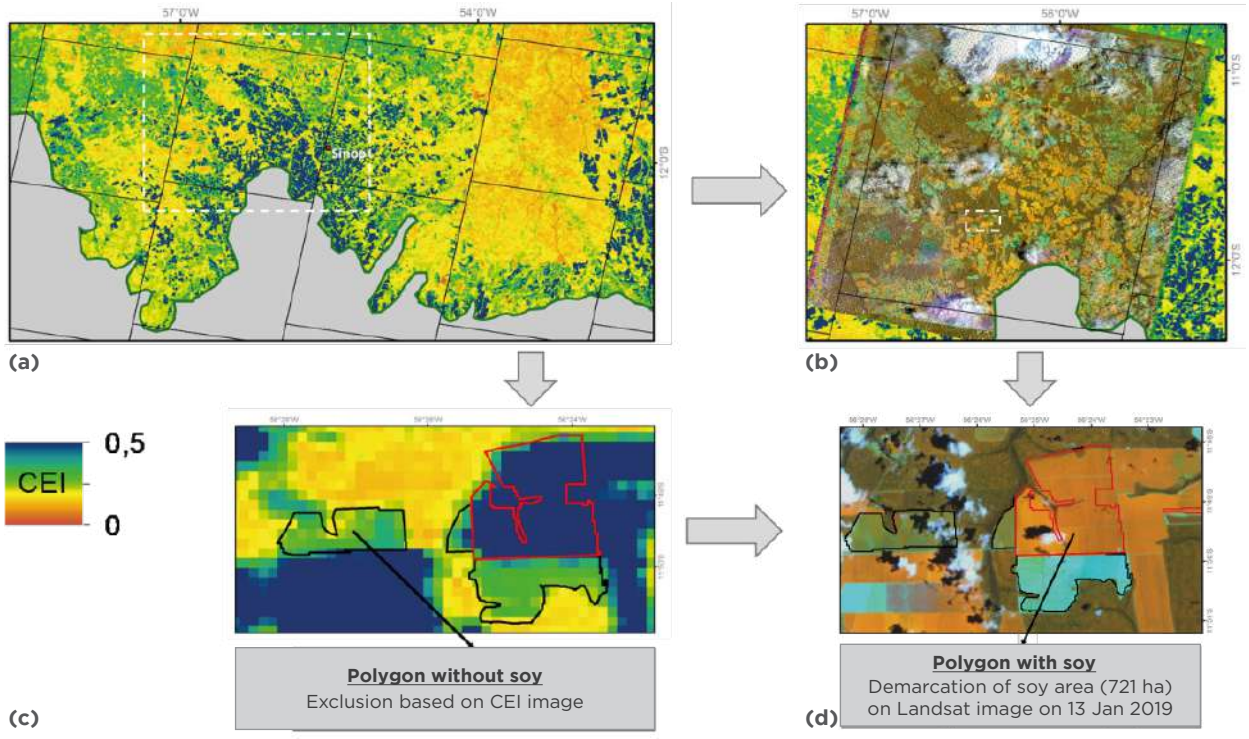


FIGURE 6.

SEQUENCE FOR MAPPING AND IDENTIFYING SOY CROPS ON SATELLITE IMAGES OF DEFORESTED POLYGONS: A) CEI IMAGE FROM EVI/MODIS IMAGES; B) OLI/LANDSAT-8 IMAGE ON 13TH JANUARY 2019; C) DETAIL OF CEI IMAGE IDENTIFYING AREAS WITHOUT SOY; D) DETAIL OF OLI/LANDSAT-8 IMAGE DEMARCATING SOY CROPS IN A DEFORESTED POLYGON AND EVALUATING THE PLANTED AREA



4 RESULTS

RESULTS

4.1 – Selection of deforested areas mapped by PRODES

From 2009 to 2018, in the 95 monitored municipalities, PRODES mapped a deforested area of 1,838,198 hectares (Table 2). Table 2 shows that the deforestation category "less than or equal to 25 hectares" has 684,568 hectares before aggregation of adjacent polygons, representing 37% of the total deforested area. After aggregation (the methodology is described in Item 3.3), this area was reduced to 296,553 hectares, indicating that a significant area (388,015 hectares) left the category "less than or equal to 25 hectares" and was aggregated into a larger category, thereby becoming subject to monitoring. With this change, the category "less than or equal to 25 hectares" now represents just 16% of the total.

TABLE 2.
NUMBER (N) AND AREA IN HECTARES (HA) OF THE DEFORESTED POLYGONS MAPPED WITHOUT AND WITH AGGREGATION BETWEEN 2009 AND 2018 IN THE 95 MONITORED MUNICIPALITIES

Category	PRODES – without aggregation		PRODES – with aggregation	
	n	ha	n	ha
≤ 25 ha	80,951	684,568	27,792	296,553
25-50 ha	8,084	277,425	5,127	179,948
50-100 ha	3,277	225,064	2,828	196,915
≥100 ha	2,385	651,164	2,970	1,164,782
Total	**94,697**	**1,838,221**	**38,717**	**1,838,198**
Total > 25 ha	**13,746**	**1,153,653**	**10,925**	**1,541,645**

Note: Applying the aggregation procedure to the 80,951 polygons caused a residual reduction of 23 hectares in the total deforested area from 1,838,221 hectares to 1,838,198 hectares.

Considering only the aggregated PRODES polygons with an area of more than 25 hectares in Table 2, the breakdown in Table 3 shows that the 57 soy-producing municipalities in the Amazon Biome located in the state of Mato Grosso had a deforested area of 559,391 hectares, equivalent to 36.3% of the deforested area in the 95 municipalities monitored by the Soy Moratorium. The 16 municipalities in Pará state had a larger deforested area, with 602,522 hectares representing 39.1% of the total. In the eleven Rondônia state municipalities, the deforested area was 344,229 hectares, or 22.3% of the total. The three municipalities in Roraima state and the two in Amapá state had a deforested area of 8,151 hectares (0.5% of the total deforested area). The three municipalities in Maranhão state and the three in Tocantins state had, respectively, a deforested area of 24,457 hectares (1.6% of the total) and 2,895 hectares (0.2% of the total) (Table 3).

TABLE 3.

DEFORESTED AREA IN HECTARES (HA) DURING THE SOY MORATORIUM, IN THE 95 MUNICIPALITIES OF THE STATES OF MATO GROSSO (MT), PARÁ (PA), RONDÔNIA (RO), RORAIMA (RR), AMAPÁ (AP), MARANHÃO (MA) AND TOCANTINS (TO)

Category	MT	PA	RO	RR	AP	MA	TO	Total
	ha	ha	ha	ha	ha	ha	ha	ha
25-50	61,234	74,267	34,434	2,717	731	5,830	735	179,948
50-100	72,678	75,387	39,929	1,480	147	6,725	569	196,915
>100	425,479	452,868	269,866	2,833	243	11,902	1,591	1,164,782
Total	**559,391**	**602,522**	**344,229**	**7,030**	**1,121**	**24,457**	**2,895**	**1,541,645**

According to the criteria established by the GTS, the monitoring of soy crops is restricted to deforestation on private rural properties (Item 3.1) and to deforestation partially located within Conservation Units, indigenous lands and settlements, a total of 1,163,040 hectares (Table 4), corresponding to 75% of the total deforested area in polygons with over 25 hectares in the 95 monitored municipalities.

TABLE 4.

DISTRIBUTION OF AREAS DEFORESTED AFTER THE SOY MORATORIUM, ON PRIVATE PROPERTIES THAT ARE OUTSIDE OR PARTIALLY WITHIN CONSERVATION UNITS (UC), INDIGENOUS LANDS (IT) AND SETTLEMENTS (AS), BY STATE, IN HECTARES (HA)

Deforestation*	MT	PA	RO	RR	AP	MA	TO	Total
	ha	ha	ha	ha	ha	ha	ha	ha
a. Outside UC, TI, AS	425,071	290,570	224,350	2,245	856	13,155	2,486	958,733
b. Partially in UC, TI, AS	42,259	96,158	60,061	1,630	136	3,888	175	204,307
Total	**467,330**	**386,728**	**284,411**	**3,875**	**992**	**17,043**	**2,661**	**1,163,040**

* Deforestation in polygons with over 25 hectares

4.2 – Satellite images identify soy in deforested areas

The 1,163,040 deforested hectares in private rural properties (Table 4) that meet the criteria established by the GTS (Item 3.1) were monitored using CEI/MODIS images (Item 3.4, Figure 6), as well as 783 images from the Landsat-7 and Landsat-8 satellites, and 600 images from the Sentinel-2A and Sentinel-2B satellites, that were available for this monitoring process. Each deforested polygon was individually inspected, using visual interpretation techniques to identify and map the soy in these polygons.

The deforested polygons identified as having soy crops in non-compliance with the Soy Moratorium underwent a revision process to ensure that they were, in fact, deforested during the period of the Moratorium. Reviewing the PRODES deforestation dates is necessary because the dates of the images used by PRODES are not selected for the Moratorium, but rather to identify the deforestation occurring in each year. The review of the dates was based on Landsat images obtained between the year 2000 and the period closest to the Moratorium (22nd July 2008), supported by images from the MODIS sensor for the same period. Deforested areas identified as having soy in polygons partially located in Conservation Units, indigenous lands and settlements were also submitted to a review, eliminating those whose soy area was located exclusively within the boundaries of these special areas. The results of both these reviews showed that, without the review process, 3,908 hectares of compliant soy would have been improperly included in the list of non-compliant areas. At the end of the process to identify soy in deforested polygons mapped during the period of the Moratorium, INPE made a careful and independent audit of the results, attesting to the quality of the work developed by Agrosatélite.

Using this procedure, 88,234 hectares of soy in the 2018/19 crop year were identified as non-compliant with the Soy Moratorium. In Mato Grosso state alone, 67,940 hectares of soy (Table 5) were identified as not meeting the Moratorium's criteria, or 77.0% of the soy detected during the monitoring and 6.4% of the total deforested area in the Amazon Biome portion of this state during the period of the Moratorium (1,065,405 hectares, Table 1). Pará state had 12,811 hectares of soy (Table 5), representing 14.5% of the soy detected during the monitoring, but just 0.5% of the deforested area in this state during the period of the Moratorium (2,618,107 hectares, Table 1). In Rondônia state, 2,911 hectares of soy (Table 5) were identified, corresponding to 3.3% of the soy detected during the monitoring and to 0.3% of the state's total deforested area during the Moratorium (887,713 hectares, Table 1). Maranhão state had 4,505 hectares of soy (Table 5), representing 5.1% of the soy detected during the monitoring and 2.4% of this state's total deforested area (187,134 hectares, Table 1). No soy was identified as non-compliant with the Moratorium in the state of Tocantins. In Roraima and Amapá states, the non-compliant soy area was just 9 and 59 hectares, respectively; however, in these states, soy expansion occurs primarily through conversion of non-forest native vegetation and, therefore, it is not mapped by PRODES nor monitored within the context of the Soy Moratorium.

It should be noted that the soy area in deforested polygons with over 100 hectares was 74,527 hectares, equivalent to 84.5% of the total that does not comply with the Soy Moratorium (Table 5). This indicates that most of the non-compliant soy area is located on private properties that cleared large tracts, as only 6,514 hectares (7.4%) of soy in non-compliance with the Moratorium were identified in the 25-50 hectares category. Thus, the 296,553 hectares deforested in polygons of less than 25 hectares (Table 2) – and therefore not monitored – should be a relatively small part of the soy that does not comply with the criteria of the Soy Moratorium.

The Appendix (Item 8) has a complete list of the 697 deforested polygons with soy crops that were monitored in the 2018/19 crop year.

TABLE 5.
SOY AREA IN HECTARES (HA) THAT WAS NON-COMPLIANT WITH THE SOY MORATORIUM, BY SIZE OF DEFORESTED POLYGONS, IN THE STATES OF MATO GROSSO (MT), PARÁ (PA), RONDÔNIA (RO), RORAIMA (RR), AMAPÁ (AP), MARANHÃO (MA) AND TOCANTINS (TO)

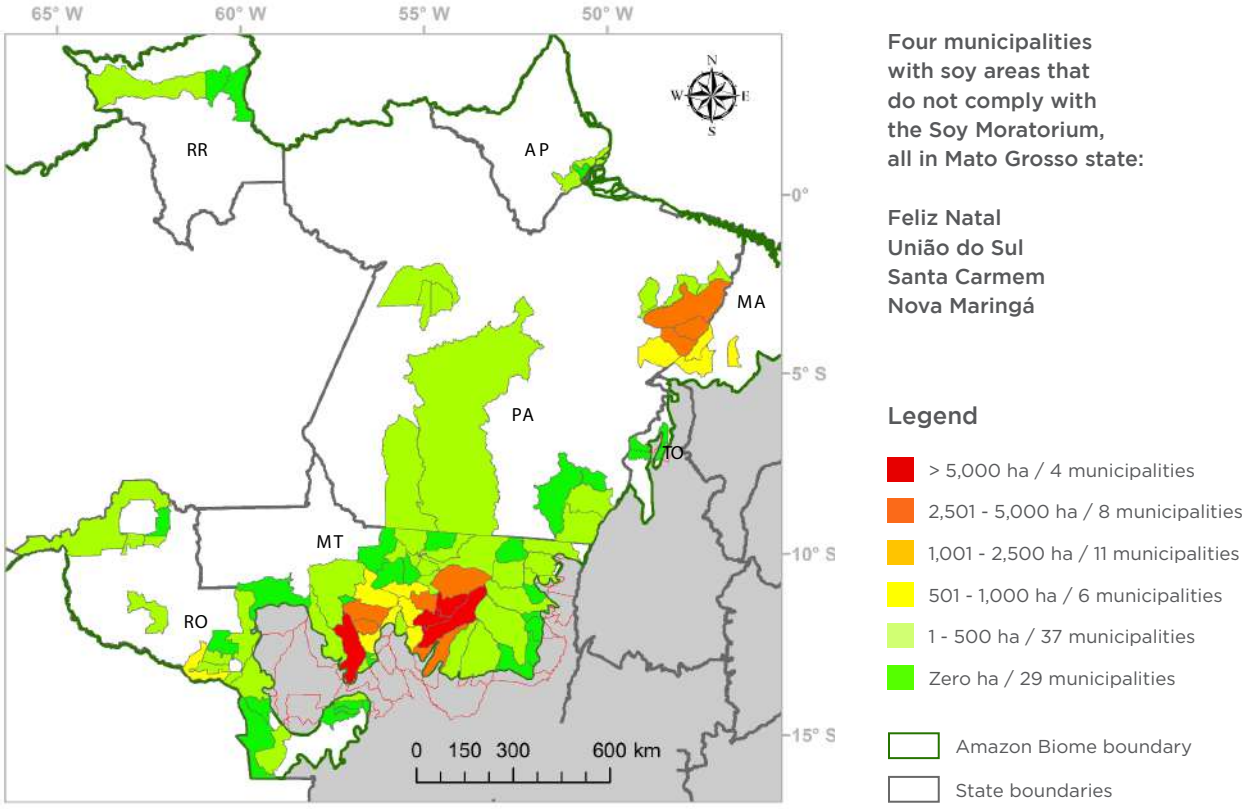
Category	MT	PA	RO	RR	AP	TO	MA	Total
	ha	ha	ha	ha	ha	ha	ha	ha
25-50	3,642.2	1,596.0	559.7	8.9	58.6	0.0	648.5	6,513.9
50-100	3,883.9	1,516.6	725.2	0.0	0.0	0.0	1,067.7	7,193.4
>100	**60,413.5 (89%)**	**9,698.1 (76%)**	**1,626.5 (56%)**	**0.0 (0%)**	**0.0 (0%)**	**0.0 (0%)**	**2,788.7 (62%)**	**74,526.9 (84%)**
Total	**67,939.6**	**12,810.7**	**2,911.5**	**8.9**	**58.6**	**0.0**	**4,504.9**	**88,234**

Figure 7 shows the 95 monitored municipalities classified by the size of their soy area in non-compliance with the Soy Moratorium. Of the total, 66 municipalities have soy that do not comply with the Moratorium (Table 6), while 29 municipalities are fully compliant. Among the non-compliant municipalities, 23 have between 1,000 hectares and 10,000 hectares, totalling 78,484 hectares, representing 88.9% of the total non-compliant soy area (Figure 7, Table 6).

The remaining 43 non-compliant municipalities have an area of less than 1,000 hectares and represent 11.1% (9,750 hectares) of the total (Figure 7, Table 6), which is significantly less than the 13,944 hectares found just in the municipality of Feliz Natal in Mato Grosso state. It should also be noted that just nine municipalities in Mato Grosso state (Feliz Natal, União do Sul, Santa Carmem, Nova Maringá, Cláudia, Porto dos Gaúchos, Marcelândia, Nova Ubiratã and Itanhangá) and three in Pará state (Paragominas, Dom Eliseu and Ulianópolis) concentrate 67.9% of the soy area that is not in compliance with the Soy Moratorium. Among the soy-producing municipalities in Mato Grosso state, Feliz Natal heads the lists of non-compliant areas (13,944 hectares) and of areas deforested between 2009 and 2018 (43,603 hectares). The three municipalities with over 100,000 hectares deforested between 2009 and 2018 are: Altamira, Pará state (306,967 hectares), Porto Velho, Rondônia state (262,125 hectares) and Novo Progresso, Pará state (135,456 hectares). However, in terms of soy areas that do not comply with the Soy Moratorium these municipalities represent just 1.4% (1,233 hectares).

FIGURE 7.

SPATIAL DISTRIBUTION OF THE 95 MONITORED MUNICIPALITIES, CLASSIFIED ACCORDING TO THEIR SOY AREA IN NON-COMPLIANCE WITH THE SOY MORATORIUM IN THE 2018/19 CROP YEAR



12 municipalities concentrate ~68% of the soy not in compliance with the Soy Moratorium

From 2009 to 2018, in the 95 monitored municipalities, 1,838,198 hectares (Table 2) were deforested, of which 88,234 hectares were converted into soy. In other words, soy was directly responsible for 4.8% of the deforestation in these municipalities, in the area monitored by the Soy Moratorium. It therefore follows that 95.2% of the deforestation in the soy-producing municipalities was not associated with soy production in the area monitored by the Moratorium.

TABLE 6.

LIST OF THE 60 MUNICIPALITIES WITH SOY NON-COMPLIANT WITH THE SOY MORATORIUM FOR THE 2018/19 CROP YEAR

Municipality	State	Polygons with soy (n)	Soy area in 2018/19 (ha)	Deforested area 2009-2018 (ha)	% of soy to deforestation
FELIZ NATAL	MT	55	13,943.9	43,603.1	32.0%
UNIÃO DO SUL	MT	27	7,672.2	21,137.0	36.3%
SANTA CARMEM	MT	25	5,988.9	13,476.3	44.4%
NOVA MARINGÁ	MT	32	5,864.9	25,857.4	22.7%
CLÁUDIA	MT	30	4,182.5	20,931.1	20.0%
PORTO DOS GAÚCHOS	MT	24	3,578.2	17,840.2	20.1%
MARCELÂNDIA	MT	37	3,210.6	28,871.1	11.1%
NOVA UBIRATÃ	MT	20	3,206.8	22,283.2	14.4%
ITANHANGÁ	MT	17	2,932.9	22,059.3	13.3%
TAPURAH	MT	20	2,482.6	8,095.0	30.7%
IPIRANGA DO NORTE	MT	8	2,460.0	6,421.0	38.3%
TABAPORÃ	MT	11	2,459.2	15,941.6	15.4%
VERA	MT	10	1,547.8	4,190.1	36.9%
SINOP	MT	8	1,334.1	10,354.8	12.9%
ITAÚBA	MT	7	1,158.7	16,548.9	7.0%
TERRA NOVA DO NORTE	MT	8	704.1	5,518.9	12.8%
SÃO FÉLIX DO ARAGUAIA	MT	6	644.8	14,480.5	4.5%
NOVA SANTA HELENA	MT	12	643.3	3,377.5	19.0%
GAÚCHA DO NORTE	MT	11	598.5	21,473.5	2.8%
MATUPÁ	MT	7	553.4	15,278.3	3.6%
SÃO JOSÉ DO RIO CLARO	MT	3	424.1	3,646.1	11.6%
QUERÊNCIA	MT	7	388.1	24,385.6	1.6%
JUARA	MT	1	336.9	31,000.8	1.1%

Municipality	State	Polygons with soy (n)	Soy area in 2018/19 (ha)	Deforested area 2009-2018 (ha)	% of soy to deforestation
COMODORO	MT	5	290.8	17,896.3	1.6%
LUCAS DO RIO VERDE	MT	2	273.4	1,242.8	22.0%
CONFRESA	MT	1	222.6	22,876.6	1.0%
SORRISO	MT	1	174.7	407.5	42.9%
NOVO MUNDO	MT	4	115.6	15,776.5	0.7%
CARLINDA	MT	2	110.5	2,071.8	5.3%
DIAMANTINO	MT	1	84.5	240.6	35.1%
BRASNORTE	MT	4	79.8	15,746.5	0.5%
PEIXOTO DE AZEVEDO	MT	3	54.6	35,774.7	0.2%
VILA RICA	MT	2	47.3	7,826.1	0.6%
SÃO JOSÉ DO XINGU	MT	2	45.4	6,530.6	0.7%
PONTES E LACERDA	MT	1	44.5	4,114.8	1.1%
PORTO ALEGRE DO NORTE	MT	2	40.0	1,939.6	2.1%
PARANATINGA	MT	1	34.4	12,397.9	0.3%
NOVA GUARITA	MT	1	4.8	1,595.1	0.3%
Total for Mato Grosso State		**418**	**67,940**	**543,209**	**12.5%**
PARAGOMINAS	PA	27	3,364.0	38,521.6	8.7%
DOM ELISEU	PA	43	3,250.3	18,382.1	17.7%
ULIANÓPOLIS	PA	23	2,751.0	19,742.8	13.9%
RONDON DO PARÁ	PA	13	1,496.6	27,401.0	5.5%
ALTAMIRA	PA	11	742.7	306,966.1	0.2%
NOVO PROGRESSO	PA	9	311.6	135,455.6	0.2%
BELTERRA	PA	7	270.9	4,086.7	6.6%
MOJUÍ DOS CAMPOS	PA	10	191.4	17,700.5	1.1%
NOVA ESPERANÇA DO PIRIÁ	PA	5	158.2	15,191.2	1.0%
IPIXUNA DO PARÁ	PA	3	88.5	18,412.2	0.5%

Municipality	State	Polygons with soy (n)	Soy area in 2018/19 (ha)	Deforested area 2009-2018 (ha)	% of soy to deforestation
SANTARÉM	PA	3	87.8	14,776.7	0.6%
SANTANA DO ARAGUAIA	PA	3	70.3	26,596.9	0.3%
SANTA MARIA DAS BARREIRAS	PA	1	16.1	25,085.5	0.1%
TAILÂNDIA	PA	1	11.1	19,282.2	0.1%
Total for Pará State		**159**	**12,811**	**687,601**	**1.9%**
PIMENTEIRAS DO OESTE	RO	8	1,094.3	4,853.9	22.5%
CEREJEIRAS	RO	13	482.5	2,129.4	22.7%
CABIXI	RO	9	326.0	3,184.3	10.2%
VILHENA	RO	5	272.0	11,709.6	2.3%
SÃO MIGUEL DO GUAPORÉ	RO	4	197.3	9,049.2	2.2%
PORTO VELHO	RO	1	177.7	262,116.6	0.1%
ALTO PARAÍSO	RO	8	137.1	28,569.6	0.5%
CORUMBIARA	RO	3	131.7	2,685.5	4.9%
RIO CRESPO	RO	4	92.9	5,746.9	1.6%
Total for Rondônia State		**55**	**2,911**	**330,045**	**0.9%**
AÇAILÂNDIA	MA	29	1,756.1	10,227.2	17.2%
BURITICUPU	MA	20	1,545.2	10,750.5	14.4%
ITINGA DO MARANHÃO	MA	13	1,203.6	12,589.1	9.6%
Total for Maranhão State		**62**	**4,505**	**33,567**	**13.4%**
ALTO ALEGRE	RR	1	8.9	10,112.1	0.1%
Total for Roraima State		**1**	**9**	**10,112**	**0.1%**
MACAPÁ	AP	2	58.6	2,466.1	2.4%
Total for Amapá State		**2**	**59**	**2,466**	**2.4%**
Overall Total		**697**	**88,234**	**1,607,000**	**5.5%**

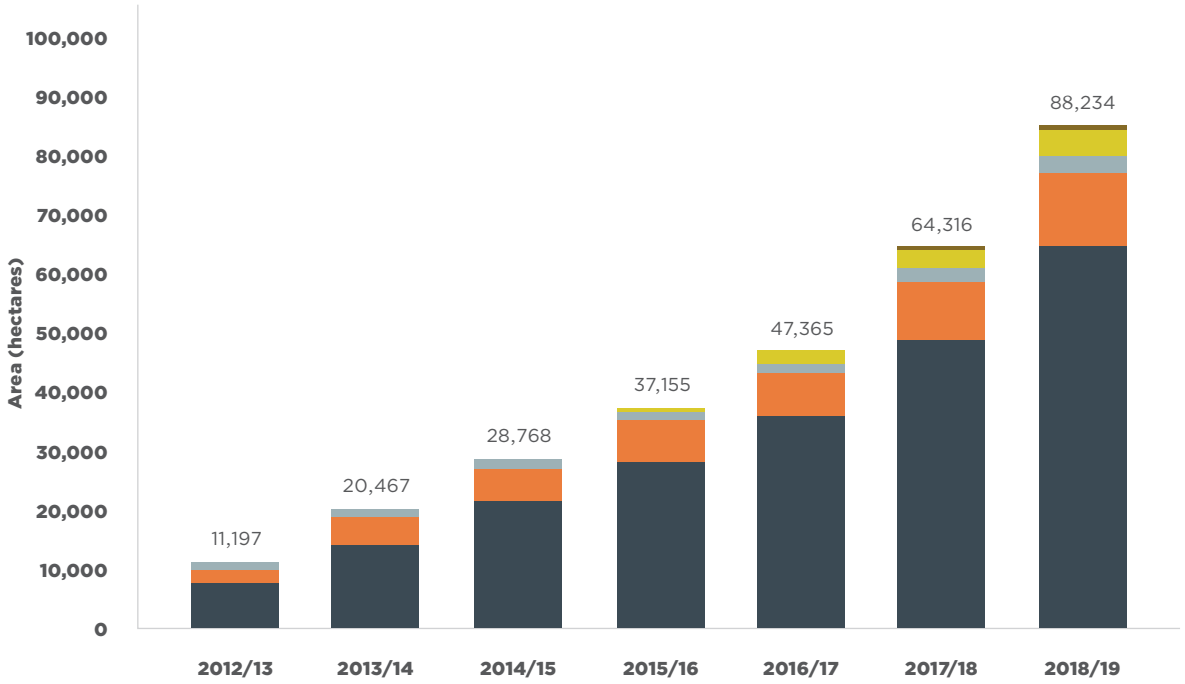
Note: The 29 municipalities listed below are fully in compliance with the Soy Moratorium for the 2018/19 crop year: Mato Grosso state – Alta Floresta, Alto Boa Vista, Bom Jesus do Araguaia, Canabrava do Norte, Canarana, Colíder, Guarantã do Norte, Juína, Nortelândia, Nova Canaã do Norte, Nova Lacerda, Nova Marilândia, Nova Mutum, Novo Horizonte do Norte, Ribeirão Cascalheira, Santa Cruz do Xingu, Santo Afonso, Tangará da Serra and Vila Bela da Santíssima Trindade; Pará state – Cumaru do Norte and Redenção; Rondônia state – Chupinguaia and Cujubim; Roraima state - Boa Vista and Bonfim; Amapá state - Itaubal; and Tocantins state – Araguaína, Piraquê and Santa Fé do Araguaia.

4.3 – Advance of non-compliant soy in the last seven crops

Based on the new reference date for the Soy Moratorium, which monitors soy crops on areas deforested after 22nd July 2008, the annual rate of soy in non-compliance with the Moratorium has seen a stronger rate of increase in the last two crop years (Figure 8). Compared to the last crop year, the non-compliant soy area increased 24,240 hectares, corresponding to about 7% of the soy expansion in the Amazon Biome, estimated at 340,000 hectares for the 2018/19 crop year. In the 2012/13 and 2016/17 crop years, non-compliant soy represented 2-3% of the expansion.

FIGURE 8.

EVOLUTION OF THE SOY AREA IN NON-COMPLIANCE WITH THE SOY MORATORIUM IN THE STATES OF RORAIMA (RR), TOCANTINS (TO), AMAPÁ (AP), MARANHÃO (MA), RONDÔNIA (RO), PARÁ (PA) AND MATO GROSSO (MT), FOR THE CROP YEARS FROM 2012/13 TO 2018/29



RR	n.a.	n.a.	n.a.	0	0	23	9
TO	n.a.	n.a.	n.a.	n.a.	0	0	0
AP	n.a.	n.a.	n.a.	38	0	58	59
MA	n.a.	n.a.	n.a.	n.a.	2,212	3,160	4,505
RO	899	1,097	1,159	1,358	1,602	1,928	2,911
PA	2,065	4,676	5,722	7,479	7,418	10,133	12,811
MT	8,233	14,694	21,887	28,280	36,134	49,013	67,940

n.a. = not evaluated

The gradual increase in soy areas that do not comply with the Soy Moratorium seen over the last six crop years is mainly due to the longer time span since 22nd July 2008, as conversion of forest areas to agriculture requires the complete removal of tree trunks and roots, as well as soil correction. This means that the process of converting forests to soy crops can take a few years, especially since it is also a common practice to grow rice for a year or two before planting soy in recently cleared areas.

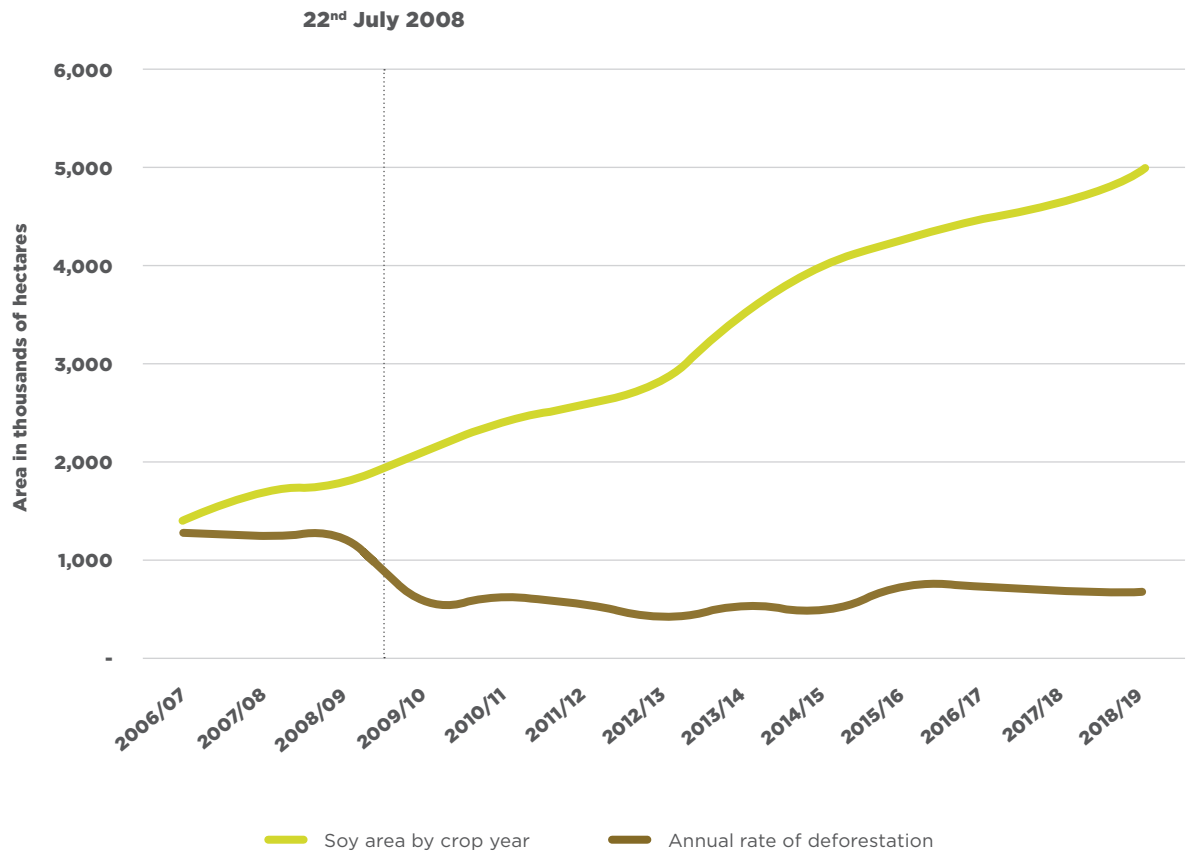
4.4 – Relevance of soy in recent deforestation in the Amazon Biome

The Brazilian 2018/19 soy crop was 115.0 million tons, grown on an area of 35.9 million hectares[3]. Despite the increase of 2.0% in planted area, production suffered a reduction of 3.6% due to a loss of 5.5% in productivity.

In the Amazon Biome, an estimated 5.0 million hectares were planted with soy in the 2018/19 crop year, which represented 13.9% of Brazil's soy area. The 88,234 hectares of soy planted in areas of the Amazon Biome deforested during the Soy Moratorium represent just 1.8% of soy's current area in that Biome. Since the start of the Moratorium initiative on 24th June 2006, the soy area in the Amazon Biome has quadrupled, going from 1.14 million hectares in the 2005/06 crop year to the current 5.0 million hectares, a considerable increase in a period noted for having the lowest annual deforestation rates (Figure 10). This increase is mostly due to the expansion of soy into pastures on land cleared before the Soy Moratorium[14] was implemented, showing the efficacy of this initiative in mitigating the advance of soy into newly deforested areas, without hurting the economic activity of soy production in the Amazon Biome, as shown in Figure 9.

FIGURE 9.

EVOLUTION OF THE TOTAL SOY AREA VERSUS THE ANNUAL DEFORESTATION RATE OVER THE LAST 13 CROPS YEARS, IN THE AMAZON BIOME

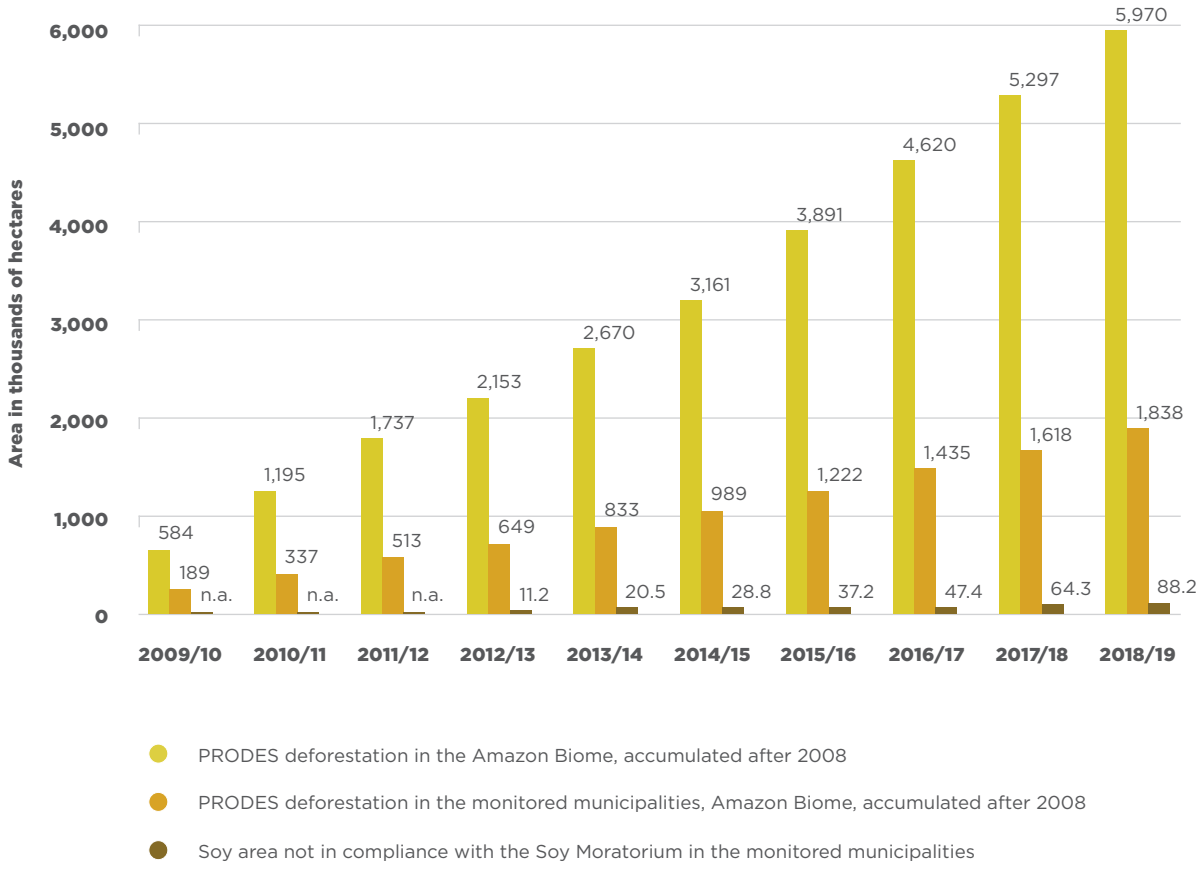


Sources: Adapted from Agrosatélite[4] and INPE[6]

Figure 10 shows a comparison of the deforestation in the Amazon Biome and in the 95 monitored municipalities (Table 2), and soy production on deforested land during the period of the Soy Moratorium (Table 5). The monitored municipalities were responsible for 30.8% of the deforestation in the Amazon Biome, with 4.8% of this area used to grow soy in the 2018/19 crop year.

FIGURE 10.

EVOLUTION OF THE ACCUMULATED DEFORESTED AREA (AMAZON BIOME AND 95 MUNICIPALITIES) AND OF THE SOY NOT IN COMPLIANCE WITH THE SOY MORATORIUM IN THE MONITORED MUNICIPALITIES.



i Area calculated based on the maps provided by INPE[6].

ii A comparison with reports from prior years shows small differences in values as a result of the PRODES update in 2017, which generated some incompatibility between the databases.

5 CONCLUSIONS

CONCLUSIONS

Based on the satellite images, 88,234 hectares of soy were planted in the 2018/19 crop year, on land in the Amazon Biome deforested after 22nd July 2008, which represents an increase of 38% over the prior crop year (64,316 hectares). Mato Grosso state had the largest share of soy that was not in compliance with the Soy Moratorium (67,940 hectares, or 77.0%), followed by Pará state (12,811 hectares, or 14.5%), Maranhão state (4,505 hectares, or 5.1%) and Rondônia state (2,911 hectares, or 3.3%).

Since the new reference date for the Soy Moratorium, 5.97 million hectares have been deforested in the Amazon Biome. In the 95 monitored municipalities, responsible for 98% of the Biome's soy in crop year 2018/19, the deforested area was 1.84 million hectares, or 30.8% of the total. The average rate of deforestation in these municipalities during the Moratorium (2008/09-2018/19) is 4.6 times lower than in the prior period (2001/02-2007/08), showing that this initiative has contributed to the reduction in the deforestation of the Amazon Biome in recent years. This study reveals that soy accounts for 1.5% of the deforestation in the Biome after 2008. However, even considering only that part of the Amazon Biome that grows 98% of the Biome's soy crops (the 95 municipalities), soy still accounts for just 4.8% of the deforested area, indicating that 95.2% of the deforestation that has occurred during the Soy Moratorium is associated with other land uses, taking into account only the area evaluated by the Moratorium.

Finally, it is important to highlight that, since the beginning of the Soy Moratorium, the area planted with soy in the Amazon Biome has more than quadrupled, going from 1.14 million hectares in the 2005/06 crop year (before the Moratorium) to 5.0 million hectares in the 2018/19 crop year, or 13.9% of Brazil's soy area (35.9 million hectares). Soy has primarily expanded into pasture areas on land cleared before the Moratorium, which shows the efficacy of this initiative in allowing food production to develop without stimulating conversion of the forest into soy crops.

São Paulo, 30th March 2020.

André Nassar
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ABIOVE

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7 TECHNICAL TEAM

TECHNICAL TEAM

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Auditor: Marcos Adami

EXECUTION

agrosatélite
applied geotechnology

GTS – SOY WORKING GROUP

8 APPENDIX

APPENDIX

8.1 – Polygons with Soy in Mato Grosso State

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
1669	37	MT	BRASNORTE	36.9
1686	49	MT	BRASNORTE	17.0
1927	25	MT	BRASNORTE	13.8
1738	41	MT	BRASNORTE	12.2
3784	83	MT	CARLINDA	73.0
3807	38	MT	CARLINDA	37.5
2113	1,092	MT	CLÁUDIA	843.3
2194	650	MT	CLÁUDIA	650.3
2005	571	MT	CLÁUDIA	518.4
2441	1,002	MT	CLÁUDIA	242.4
2090	218	MT	CLÁUDIA	218.5
2273	287	MT	CLÁUDIA	216.4
1982	497	MT	CLÁUDIA	161.3
2366	330	MT	CLÁUDIA	159.5
2376	152	MT	CLÁUDIA	133.8
2119	108	MT	CLÁUDIA	108.4
2395	613	MT	CLÁUDIA	95.6
2347	96	MT	CLÁUDIA	95.5
2072	93	MT	CLÁUDIA	92.5
2404	290	MT	CLÁUDIA	70.5
2412	77	MT	CLÁUDIA	63.9
2161	51	MT	CLÁUDIA	49.4
2111	64	MT	CLÁUDIA	46.7
2171	46	MT	CLÁUDIA	46.2
2123	46	MT	CLÁUDIA	46.0
2198	43	MT	CLÁUDIA	42.9
2408	110	MT	CLÁUDIA	41.2
2216	41	MT	CLÁUDIA	40.5
2079	39	MT	CLÁUDIA	38.8
2407	38	MT	CLÁUDIA	38.5
2093	37	MT	CLÁUDIA	34.9

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
2491	29	MT	CLÁUDIA	27.1
2368	45	MT	CLÁUDIA	22.3
2277	28	MT	CLÁUDIA	19.5
2386	145	MT	CLÁUDIA	11.7
2360	39	MT	CLÁUDIA	9.0
677	446	MT	COMODORO	198.4
802	204	MT	COMODORO	52.5
303	32	MT	COMODORO	17.6
299	35	MT	COMODORO	15.2
289	28	MT	COMODORO	7.1
3866	243	MT	CONFRESA	222.6
242	85	MT	DIAMANTINO	84.5
969	5,134	MT	FELIZ NATAL	3,039.0
852	933	MT	FELIZ NATAL	757.9
1113	862	MT	FELIZ NATAL	706.3
1386	1,422	MT	FELIZ NATAL	686.3
1406	1,628	MT	FELIZ NATAL	656.3
1096	2,367	MT	FELIZ NATAL	623.4
1215	1,108	MT	FELIZ NATAL	595.2
1087	611	MT	FELIZ NATAL	513.6
1361	1,153	MT	FELIZ NATAL	494.4
1436	483	MT	FELIZ NATAL	450.3
993	532	MT	FELIZ NATAL	406.8
959	415	MT	FELIZ NATAL	383.8
1396	398	MT	FELIZ NATAL	343.5
907	763	MT	FELIZ NATAL	331.2
916	1,415	MT	FELIZ NATAL	253.3
939	926	MT	FELIZ NATAL	243.9
1454	250	MT	FELIZ NATAL	243.6
1418	253	MT	FELIZ NATAL	231.9
1164	1,071	MT	FELIZ NATAL	217.7
1046	352	MT	FELIZ NATAL	189.2
1092	189	MT	FELIZ NATAL	189.1
853	177	MT	FELIZ NATAL	177.4
824	174	MT	FELIZ NATAL	174.0
1271	174	MT	FELIZ NATAL	155.5
1101	233	MT	FELIZ NATAL	153.6
1292	233	MT	FELIZ NATAL	132.1
970	130	MT	FELIZ NATAL	130.4

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
1202	130	MT	FELIZ NATAL	126.0
1404	149	MT	FELIZ NATAL	123.9
1303	277	MT	FELIZ NATAL	123.6
1371	369	MT	FELIZ NATAL	110.8
818	108	MT	FELIZ NATAL	108.4
1126	607	MT	FELIZ NATAL	102.9
901	126	MT	FELIZ NATAL	93.1
914	133	MT	FELIZ NATAL	78.4
1609	222	MT	FELIZ NATAL	75.6
1060	70	MT	FELIZ NATAL	69.5
1185	39	MT	FELIZ NATAL	39.4
934	224	MT	FELIZ NATAL	38.6
1378	37	MT	FELIZ NATAL	37.3
1267	37	MT	FELIZ NATAL	37.0
1325	36	MT	FELIZ NATAL	36.3
920	70	MT	FELIZ NATAL	34.1
1073	35	MT	FELIZ NATAL	30.1
987	27	MT	FELIZ NATAL	27.1
949	26	MT	FELIZ NATAL	26.4
1162	25	MT	FELIZ NATAL	25.0
857	29	MT	FELIZ NATAL	24.0
1172	37	MT	FELIZ NATAL	23.7
1399	76	MT	FELIZ NATAL	23.2
1188	142	MT	FELIZ NATAL	15.8
1351	157	MT	FELIZ NATAL	13.8
1094	42	MT	FELIZ NATAL	12.4
922	35	MT	FELIZ NATAL	5.6
1111	113	MT	FELIZ NATAL	1.8
546	1,198	MT	GAÚCHA DO NORTE	182.3
320	217	MT	GAÚCHA DO NORTE	127.9
333	238	MT	GAÚCHA DO NORTE	120.6
521	445	MT	GAÚCHA DO NORTE	81.6
665	32	MT	GAÚCHA DO NORTE	31.8
575	34	MT	GAÚCHA DO NORTE	13.1
467	35	MT	GAÚCHA DO NORTE	12.5
445	234	MT	GAÚCHA DO NORTE	10.6
606	53	MT	GAÚCHA DO NORTE	9.1
553	29	MT	GAÚCHA DO NORTE	5.2
598	49	MT	GAÚCHA DO NORTE	4.2

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
1807	1,706	MT	IPIRANGA DO NORTE	861.0
1983	452	MT	IPIRANGA DO NORTE	451.5
1594	491	MT	IPIRANGA DO NORTE	410.0
1973	302	MT	IPIRANGA DO NORTE	270.9
1801	168	MT	IPIRANGA DO NORTE	168.1
1953	143	MT	IPIRANGA DO NORTE	142.7
1974	122	MT	IPIRANGA DO NORTE	121.7
1962	43	MT	IPIRANGA DO NORTE	34.1
1756	1,579	MT	ITANHANGÁ	1,197.2
1798	1,669	MT	ITANHANGÁ	367.7
1769	324	MT	ITANHANGÁ	274.6
1402	241	MT	ITANHANGÁ	228.6
1306	186	MT	ITANHANGÁ	185.7
1725	215	MT	ITANHANGÁ	152.8
1368	136	MT	ITANHANGÁ	127.3
1584	107	MT	ITANHANGÁ	83.4
1305	64	MT	ITANHANGÁ	64.0
1367	72	MT	ITANHANGÁ	59.2
1390	45	MT	ITANHANGÁ	43.2
1382	203	MT	ITANHANGÁ	38.9
1344	38	MT	ITANHANGÁ	38.2
1417	68	MT	ITANHANGÁ	23.4
1667	57	MT	ITANHANGÁ	22.8
1617	38	MT	ITANHANGÁ	15.5
1405	158	MT	ITANHANGÁ	12.3
2685	424	MT	ITAÚBA	402.8
2631	1,211	MT	ITAÚBA	395.0
2724	270	MT	ITAÚBA	263.7
2545	224	MT	ITAÚBA	43.9
2520	39	MT	ITAÚBA	23.0
2524	50	MT	ITAÚBA	16.3
2510	34	MT	ITAÚBA	14.0
1732	1,592	MT	JUARA	353.5
684	514	MT	LUCAS DO RIO VERDE	137.6
693	149	MT	LUCAS DO RIO VERDE	135.8
2888	706	MT	MARCELÂNDIA	705.9
2861	395	MT	MARCELÂNDIA	380.3
2955	3,568	MT	MARCELÂNDIA	263.9
2851	342	MT	MARCELÂNDIA	207.4

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
2995	183	MT	MARCELÂNDIA	161.6
2764	314	MT	MARCELÂNDIA	136.1
2740	230	MT	MARCELÂNDIA	129.4
2741	174	MT	MARCELÂNDIA	124.2
3102	659	MT	MARCELÂNDIA	99.1
3019	86	MT	MARCELÂNDIA	79.2
2768	94	MT	MARCELÂNDIA	79.1
3195	85	MT	MARCELÂNDIA	78.9
3174	70	MT	MARCELÂNDIA	62.5
3198	66	MT	MARCELÂNDIA	61.1
2825	65	MT	MARCELÂNDIA	58.5
3189	54	MT	MARCELÂNDIA	54.1
2739	90	MT	MARCELÂNDIA	48.9
2723	447	MT	MARCELÂNDIA	48.5
2765	82	MT	MARCELÂNDIA	44.8
2543	369	MT	MARCELÂNDIA	41.3
2771	47	MT	MARCELÂNDIA	36.6
2732	93	MT	MARCELÂNDIA	36.0
3186	40	MT	MARCELÂNDIA	29.2
2979	38	MT	MARCELÂNDIA	26.5
2593	36	MT	MARCELÂNDIA	26.3
2784	29	MT	MARCELÂNDIA	24.5
2733	224	MT	MARCELÂNDIA	22.5
2649	25	MT	MARCELÂNDIA	20.8
3162	26	MT	MARCELÂNDIA	19.7
2579	34	MT	MARCELÂNDIA	18.4
2691	32	MT	MARCELÂNDIA	18.1
2672	28	MT	MARCELÂNDIA	18.0
2919	25	MT	MARCELÂNDIA	15.1
2874	27	MT	MARCELÂNDIA	13.7
2620	131	MT	MARCELÂNDIA	11.1
2696	62	MT	MARCELÂNDIA	5.8
2729	130	MT	MARCELÂNDIA	3.5
4154	289	MT	MATUPÁ	286.7
4108	113	MT	MATUPÁ	104.1
4172	92	MT	MATUPÁ	86.5
3911	36	MT	MATUPÁ	27.2
3858	28	MT	MATUPÁ	20.8
3758	57	MT	MATUPÁ	14.6

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
3739	26	MT	MATUPÁ	13.4
3673	31	MT	NOVA GUARITA	4.8
762	2,418	MT	NOVA MARINGÁ	1,310.9
686	590	MT	NOVA MARINGÁ	584.7
1328	417	MT	NOVA MARINGÁ	416.5
1722	413	MT	NOVA MARINGÁ	413.0
768	1,332	MT	NOVA MARINGÁ	403.4
1539	406	MT	NOVA MARINGÁ	374.7
1694	344	MT	NOVA MARINGÁ	344.0
1880	312	MT	NOVA MARINGÁ	312.4
952	264	MT	NOVA MARINGÁ	263.7
576	258	MT	NOVA MARINGÁ	258.3
935	153	MT	NOVA MARINGÁ	138.5
1341	133	MT	NOVA MARINGÁ	133.4
1345	124	MT	NOVA MARINGÁ	117.3
554	109	MT	NOVA MARINGÁ	79.9
806	71	MT	NOVA MARINGÁ	71.3
712	254	MT	NOVA MARINGÁ	69.9
1882	68	MT	NOVA MARINGÁ	68.4
890	60	MT	NOVA MARINGÁ	60.2
611	81	MT	NOVA MARINGÁ	53.0
714	93	MT	NOVA MARINGÁ	49.3
755	55	MT	NOVA MARINGÁ	49.1
709	1,030	MT	NOVA MARINGÁ	40.9
1608	40	MT	NOVA MARINGÁ	40.2
640	31	MT	NOVA MARINGÁ	31.2
734	30	MT	NOVA MARINGÁ	30.5
800	27	MT	NOVA MARINGÁ	26.8
1666	53	MT	NOVA MARINGÁ	26.5
720	26	MT	NOVA MARINGÁ	26.0
644	47	MT	NOVA MARINGÁ	23.4
757	48	MT	NOVA MARINGÁ	16.0
618	36	MT	NOVA MARINGÁ	8.8
733	26	MT	NOVA MARINGÁ	6.5
2920	145	MT	NOVA SANTA HELENA	144.7
2658	121	MT	NOVA SANTA HELENA	118.9
2737	89	MT	NOVA SANTA HELENA	88.8
2722	236	MT	NOVA SANTA HELENA	72.9
2750	61	MT	NOVA SANTA HELENA	61.4

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
2783	40	MT	NOVA SANTA HELENA	39.8
2670	36	MT	NOVA SANTA HELENA	35.9
2642	32	MT	NOVA SANTA HELENA	32.4
2671	37	MT	NOVA SANTA HELENA	18.2
2675	28	MT	NOVA SANTA HELENA	16.5
2886	58	MT	NOVA SANTA HELENA	10.5
2667	34	MT	NOVA SANTA HELENA	3.6
1447	653	MT	NOVA UBIRATÃ	653.1
434	812	MT	NOVA UBIRATÃ	553.8
447	293	MT	NOVA UBIRATÃ	293.4
394	263	MT	NOVA UBIRATÃ	262.6
435	220	MT	NOVA UBIRATÃ	220.3
617	225	MT	NOVA UBIRATÃ	210.7
446	189	MT	NOVA UBIRATÃ	189.4
432	958	MT	NOVA UBIRATÃ	148.6
814	141	MT	NOVA UBIRATÃ	140.9
797	95	MT	NOVA UBIRATÃ	94.9
429	91	MT	NOVA UBIRATÃ	90.8
1221	86	MT	NOVA UBIRATÃ	72.1
639	400	MT	NOVA UBIRATÃ	59.9
656	69	MT	NOVA UBIRATÃ	53.7
731	43	MT	NOVA UBIRATÃ	43.3
742	109	MT	NOVA UBIRATÃ	37.6
610	33	MT	NOVA UBIRATÃ	27.8
825	47	MT	NOVA UBIRATÃ	25.2
643	27	MT	NOVA UBIRATÃ	21.7
657	230	MT	NOVA UBIRATÃ	7.0
3981	81	MT	NOVO MUNDO	53.7
3960	53	MT	NOVO MUNDO	30.7
4280	34	MT	NOVO MUNDO	20.8
4341	31	MT	NOVO MUNDO	10.4
754	1,735	MT	PARANATINGA	34.4
3279	298	MT	PEIXOTO DE AZEVEDO	26.1
3451	85	MT	PEIXOTO DE AZEVEDO	21.8
3280	54	MT	PEIXOTO DE AZEVEDO	6.7
25	49	MT	PONTES E LACERDA	44.5
2805	39	MT	PORTO ALEGRE DO NORTE	31.2
2806	171	MT	PORTO ALEGRE DO NORTE	8.8
1916	886	MT	PORTO DOS GAÚCHOS	780.6

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
1939	1,188	MT	PORTO DOS GAÚCHOS	732.6
2052	812	MT	PORTO DOS GAÚCHOS	671.9
1869	341	MT	PORTO DOS GAÚCHOS	337.0
1887	221	MT	PORTO DOS GAÚCHOS	216.9
2039	143	MT	PORTO DOS GAÚCHOS	142.6
2044	102	MT	PORTO DOS GAÚCHOS	102.1
1866	97	MT	PORTO DOS GAÚCHOS	83.8
1907	68	MT	PORTO DOS GAÚCHOS	66.3
1800	63	MT	PORTO DOS GAÚCHOS	46.8
2045	154	MT	PORTO DOS GAÚCHOS	44.9
2011	41	MT	PORTO DOS GAÚCHOS	40.8
1854	34	MT	PORTO DOS GAÚCHOS	33.9
1990	33	MT	PORTO DOS GAÚCHOS	32.1
2031	31	MT	PORTO DOS GAÚCHOS	30.8
1857	30	MT	PORTO DOS GAÚCHOS	30.2
2105	48	MT	PORTO DOS GAÚCHOS	30.1
2036	47	MT	PORTO DOS GAÚCHOS	28.2
1833	28	MT	PORTO DOS GAÚCHOS	27.0
1863	31	MT	PORTO DOS GAÚCHOS	26.7
1865	1,542	MT	PORTO DOS GAÚCHOS	23.7
1912	27	MT	PORTO DOS GAÚCHOS	22.8
2022	28	MT	PORTO DOS GAÚCHOS	20.9
2013	57	MT	PORTO DOS GAÚCHOS	5.5
1090	126	MT	QUERÊNCIA	125.7
945	103	MT	QUERÊNCIA	102.7
879	46	MT	QUERÊNCIA	46.2
938	44	MT	QUERÊNCIA	40.6
594	43	MT	QUERÊNCIA	38.7
1639	5,399	MT	QUERÊNCIA	26.0
956	42	MT	QUERÊNCIA	8.2
1791	1,562	MT	SANTA CARMEM	1,561.8
1818	1,113	MT	SANTA CARMEM	1,113.4
2020	874	MT	SANTA CARMEM	873.6
1804	355	MT	SANTA CARMEM	355.0
1821	533	MT	SANTA CARMEM	299.4
2019	1,946	MT	SANTA CARMEM	283.3
1994	229	MT	SANTA CARMEM	229.0
1678	220	MT	SANTA CARMEM	213.1
1831	167	MT	SANTA CARMEM	165.2

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
1874	152	MT	SANTA CARMEM	151.6
2040	126	MT	SANTA CARMEM	126.2
1802	98	MT	SANTA CARMEM	97.5
1718	70	MT	SANTA CARMEM	64.9
1839	54	MT	SANTA CARMEM	53.6
1886	58	MT	SANTA CARMEM	53.3
1758	46	MT	SANTA CARMEM	46.3
1795	44	MT	SANTA CARMEM	44.0
1711	45	MT	SANTA CARMEM	41.6
1723	41	MT	SANTA CARMEM	41.0
1796	49	MT	SANTA CARMEM	35.5
1691	36	MT	SANTA CARMEM	31.6
1888	94	MT	SANTA CARMEM	21.8
1899	43	MT	SANTA CARMEM	7.8
1817	160	MT	SANTA CARMEM	3.4
1906	30	MT	SANTA CARMEM	2.6
2211	523	MT	SÃO FÉLIX DO ARAGUAIA	450.8
2199	79	MT	SÃO FÉLIX DO ARAGUAIA	75.5
2315	32	MT	SÃO FÉLIX DO ARAGUAIA	31.6
2193	32	MT	SÃO FÉLIX DO ARAGUAIA	31.6
2208	64	MT	SÃO FÉLIX DO ARAGUAIA	28.6
2203	27	MT	SÃO FÉLIX DO ARAGUAIA	26.7
538	1,058	MT	SÃO JOSÉ DO RIO CLARO	356.4
560	46	MT	SÃO JOSÉ DO RIO CLARO	35.9
483	38	MT	SÃO JOSÉ DO RIO CLARO	31.8
3024	29	MT	SÃO JOSÉ DO XINGU	26.9
3116	44	MT	SÃO JOSÉ DO XINGU	18.5
2182	565	MT	SINOP	549.5
2155	437	MT	SINOP	427.1
1997	167	MT	SINOP	166.8
2006	105	MT	SINOP	91.8
2026	53	MT	SINOP	46.7
2158	28	MT	SINOP	27.9
2016	25	MT	SINOP	19.2
1948	28	MT	SINOP	5.1
1466	175	MT	SORRISO	174.7
2335	461	MT	TABAPORÃ	457.4
2186	484	MT	TABAPORÃ	455.1
2251	376	MT	TABAPORÃ	376.1

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
2209	395	MT	TABAPORÃ	374.2
2127	323	MT	TABAPORÃ	289.1
2704	180	MT	TABAPORÃ	159.4
2266	241	MT	TABAPORÃ	129.7
2221	103	MT	TABAPORÃ	98.9
2275	51	MT	TABAPORÃ	51.1
2292	41	MT	TABAPORÃ	41.4
2636	27	MT	TABAPORÃ	27.0
947	386	MT	TAPURAH	371.0
1248	388	MT	TAPURAH	347.9
1242	285	MT	TAPURAH	285.3
1009	606	MT	TAPURAH	261.9
1200	187	MT	TAPURAH	180.7
803	207	MT	TAPURAH	176.9
983	160	MT	TAPURAH	156.2
1031	148	MT	TAPURAH	123.4
887	258	MT	TAPURAH	104.5
1003	79	MT	TAPURAH	78.9
1033	74	MT	TAPURAH	74.4
747	127	MT	TAPURAH	69.6
801	42	MT	TAPURAH	42.2
1012	39	MT	TAPURAH	38.7
1214	235	MT	TAPURAH	35.4
1022	31	MT	TAPURAH	31.0
807	43	MT	TAPURAH	29.7
893	27	MT	TAPURAH	27.1
1251	28	MT	TAPURAH	25.7
995	28	MT	TAPURAH	20.4
3062	883	MT	TERRA NOVA DO NORTE	469.1
3040	84	MT	TERRA NOVA DO NORTE	74.9
3112	83	MT	TERRA NOVA DO NORTE	45.9
3342	45	MT	TERRA NOVA DO NORTE	41.4
3017	62	MT	TERRA NOVA DO NORTE	40.0
3071	47	MT	TERRA NOVA DO NORTE	22.1
3020	81	MT	TERRA NOVA DO NORTE	6.8
3377	35	MT	TERRA NOVA DO NORTE	4.0
2133	2,146	MT	UNIÃO DO SUL	1,575.9
2057	1,222	MT	UNIÃO DO SUL	1,177.1
1929	1,450	MT	UNIÃO DO SUL	963.0

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
2197	960	MT	UNIÃO DO SUL	960.4
2106	689	MT	UNIÃO DO SUL	689.2
2038	558	MT	UNIÃO DO SUL	557.8
2049	396	MT	UNIÃO DO SUL	282.2
2132	228	MT	UNIÃO DO SUL	211.8
1979	198	MT	UNIÃO DO SUL	197.6
1966	191	MT	UNIÃO DO SUL	190.8
1988	555	MT	UNIÃO DO SUL	146.5
1922	140	MT	UNIÃO DO SUL	140.3
2104	139	MT	UNIÃO DO SUL	114.0
2147	84	MT	UNIÃO DO SUL	84.1
2110	82	MT	UNIÃO DO SUL	82.4
1924	78	MT	UNIÃO DO SUL	78.2
2131	365	MT	UNIÃO DO SUL	46.1
2325	53	MT	UNIÃO DO SUL	45.0
2414	38	MT	UNIÃO DO SUL	37.8
2307	30	MT	UNIÃO DO SUL	30.1
2283	26	MT	UNIÃO DO SUL	25.6
2092	39	MT	UNIÃO DO SUL	22.2
2108	152	MT	UNIÃO DO SUL	21.9
2413	29	MT	UNIÃO DO SUL	21.0
2333	25	MT	UNIÃO DO SUL	17.3
2056	36	MT	UNIÃO DO SUL	15.5
2134	28	MT	UNIÃO DO SUL	8.5
1467	396	MT	VERA	395.6
1624	1,223	MT	VERA	374.7
923	203	MT	VERA	202.6
996	139	MT	VERA	139.3
1420	144	MT	VERA	126.7
904	123	MT	VERA	122.8
1493	98	MT	VERA	94.4
1522	39	MT	VERA	32.2
1509	39	MT	VERA	31.6
1572	31	MT	VERA	27.9
3933	29	MT	VILA RICA	29.2
3947	32	MT	VILA RICA	18.1
TOTAL FOR MATO GROSSO STATE				**67,940**

8.2 – Polygons with Soy in Pará State

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
6745	556	PA	ALTAMIRA	344.4
7794	158	PA	ALTAMIRA	130.3
6772	65	PA	ALTAMIRA	56.9
8144	662	PA	ALTAMIRA	55.7
6813	250	PA	ALTAMIRA	40.1
8135	44	PA	ALTAMIRA	34.0
8108	1,291	PA	ALTAMIRA	31.4
6740	26	PA	ALTAMIRA	17.5
7157	611	PA	ALTAMIRA	14.9
6779	42	PA	ALTAMIRA	12.9
6770	37	PA	ALTAMIRA	4.6
9860	171	PA	BELTERRA	75.1
10089	102	PA	BELTERRA	62.3
10371	57	PA	BELTERRA	49.5
10372	40	PA	BELTERRA	36.5
9862	26	PA	BELTERRA	25.9
9553	27	PA	BELTERRA	18.1
9836	34	PA	BELTERRA	3.4
9287	585	PA	DOM ELISEU	313.2
8764	324	PA	DOM ELISEU	287.9
9214	749	PA	DOM ELISEU	271.6
8908	264	PA	DOM ELISEU	241.0
8820	179	PA	DOM ELISEU	179.4
9083	621	PA	DOM ELISEU	171.1
8763	142	PA	DOM ELISEU	129.6
8967	120	PA	DOM ELISEU	114.1
9037	111	PA	DOM ELISEU	104.2
9248	368	PA	DOM ELISEU	94.3
8797	88	PA	DOM ELISEU	88.5
8822	82	PA	DOM ELISEU	75.1
8771	65	PA	DOM ELISEU	65.2
8918	56	PA	DOM ELISEU	55.9
8974	55	PA	DOM ELISEU	52.6
8969	46	PA	DOM ELISEU	45.7
9137	98	PA	DOM ELISEU	43.6
8768	41	PA	DOM ELISEU	41.1

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
9010	40	PA	DOM ELISEU	39.9
8846	37	PA	DOM ELISEU	35.3
8891	35	PA	DOM ELISEU	35.0
9017	92	PA	DOM ELISEU	34.8
8759	37	PA	DOM ELISEU	32.6
8961	35	PA	DOM ELISEU	30.3
8776	29	PA	DOM ELISEU	29.4
8871	34	PA	DOM ELISEU	29.0
8958	57	PA	DOM ELISEU	27.8
8884	27	PA	DOM ELISEU	27.0
9015	40	PA	DOM ELISEU	21.9
9078	83	PA	DOM ELISEU	20.0
8887	31	PA	DOM ELISEU	19.7
8869	630	PA	DOM ELISEU	17.7
9113	35	PA	DOM ELISEU	17.2
8916	59	PA	DOM ELISEU	16.9
8829	79	PA	DOM ELISEU	15.1
8929	29	PA	DOM ELISEU	14.7
8838	54	PA	DOM ELISEU	11.8
9103	27	PA	DOM ELISEU	11.6
8953	155	PA	DOM ELISEU	10.7
9143	98	PA	DOM ELISEU	8.3
8711	26	PA	DOM ELISEU	8.2
8878	231	PA	DOM ELISEU	7.7
9158	385	PA	DOM ELISEU	2.1
10288	52	PA	IPIXUNA DO PARÁ	47.6
10220	30	PA	IPIXUNA DO PARÁ	28.6
10235	67	PA	IPIXUNA DO PARÁ	12.3
10333	31	PA	MOJUÍ DOS CAMPOS	30.9
10388	30	PA	MOJUÍ DOS CAMPOS	27.3
10497	32	PA	MOJUÍ DOS CAMPOS	27.2
10293	26	PA	MOJUÍ DOS CAMPOS	21.9
10315	34	PA	MOJUÍ DOS CAMPOS	21.1
10194	26	PA	MOJUÍ DOS CAMPOS	19.9
10259	56	PA	MOJUÍ DOS CAMPOS	16.7
10505	34	PA	MOJUÍ DOS CAMPOS	16.5
10329	41	PA	MOJUÍ DOS CAMPOS	8.4
10232	35	PA	MOJUÍ DOS CAMPOS	4.6

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
10423	111	PA	NOVA ESPERANÇA DO PIRIÁ	99.5
10494	34	PA	NOVA ESPERANÇA DO PIRIÁ	16.4
10357	39	PA	NOVA ESPERANÇA DO PIRIÁ	15.9
10354	38	PA	NOVA ESPERANÇA DO PIRIÁ	14.3
10381	59	PA	NOVA ESPERANÇA DO PIRIÁ	12.1
7529	154	PA	NOVO PROGRESSO	134.4
7742	46	PA	NOVO PROGRESSO	43.3
7523	43	PA	NOVO PROGRESSO	31.1
5486	35	PA	NOVO PROGRESSO	28.0
7449	53	PA	NOVO PROGRESSO	26.6
7495	31	PA	NOVO PROGRESSO	17.8
7459	138	PA	NOVO PROGRESSO	16.1
7507	44	PA	NOVO PROGRESSO	8.7
7446	65	PA	NOVO PROGRESSO	5.6
9889	1,768	PA	PARAGOMINAS	1,016.5
9829	439	PA	PARAGOMINAS	359.2
10030	610	PA	PARAGOMINAS	238.3
9973	500	PA	PARAGOMINAS	208.0
9665	184	PA	PARAGOMINAS	183.7
10177	153	PA	PARAGOMINAS	153.1
9819	150	PA	PARAGOMINAS	128.5
9859	124	PA	PARAGOMINAS	114.2
9922	243	PA	PARAGOMINAS	112.3
9825	84	PA	PARAGOMINAS	83.7
9894	115	PA	PARAGOMINAS	82.8
10027	84	PA	PARAGOMINAS	64.8
10221	133	PA	PARAGOMINAS	64.2
10336	63	PA	PARAGOMINAS	62.6
10022	75	PA	PARAGOMINAS	61.9
10250	100	PA	PARAGOMINAS	56.3
10076	52	PA	PARAGOMINAS	52.3
9801	50	PA	PARAGOMINAS	49.7
9578	75	PA	PARAGOMINAS	49.6
9873	44	PA	PARAGOMINAS	39.3
9575	34	PA	PARAGOMINAS	34.1
9871	53	PA	PARAGOMINAS	32.1
10165	30	PA	PARAGOMINAS	29.7
9784	28	PA	PARAGOMINAS	27.6
10109	78	PA	PARAGOMINAS	25.6

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
9869	115	PA	PARAGOMINAS	21.1
10130	28	PA	PARAGOMINAS	12.9
8994	3,079	PA	RONDON DO PARÁ	620.3
8757	787	PA	RONDON DO PARÁ	599.9
8499	319	PA	RONDON DO PARÁ	204.0
8789	400	PA	RONDON DO PARÁ	184.6
8794	465	PA	RONDON DO PARÁ	77.6
8982	70	PA	RONDON DO PARÁ	42.7
8779	33	PA	RONDON DO PARÁ	33.0
8619	31	PA	RONDON DO PARÁ	30.8
8725	44	PA	RONDON DO PARÁ	29.4
8617	30	PA	RONDON DO PARÁ	12.4
8542	25	PA	RONDON DO PARÁ	6.0
8530	31	PA	RONDON DO PARÁ	4.4
8543	58	PA	RONDON DO PARÁ	3.4
6202	38	PA	SANTA MARIA DAS BARREIRAS	16.1
5900	60	PA	SANTANA DO ARAGUAIA	31.1
5697	49	PA	SANTANA DO ARAGUAIA	24.9
4694	44	PA	SANTANA DO ARAGUAIA	14.3
10356	55	PA	SANTARÉM	49.0
10435	36	PA	SANTARÉM	26.8
10444	100	PA	SANTARÉM	9.0
9927	106	PA	TAILÂNDIA	11.1
9514	1,783	PA	ULIANÓPOLIS	938.8
9345	1,363	PA	ULIANÓPOLIS	449.1
9331	311	PA	ULIANÓPOLIS	260.5
9297	370	PA	ULIANÓPOLIS	222.0
9538	149	PA	ULIANÓPOLIS	143.7
9546	1,616	PA	ULIANÓPOLIS	117.7
9334	135	PA	ULIANÓPOLIS	93.3
9322	102	PA	ULIANÓPOLIS	82.6
9329	82	PA	ULIANÓPOLIS	75.9
9268	86	PA	ULIANÓPOLIS	65.1
9253	45	PA	ULIANÓPOLIS	39.7
9525	34	PA	ULIANÓPOLIS	34.3
9257	90	PA	ULIANÓPOLIS	33.8
9555	57	PA	ULIANÓPOLIS	31.5
9539	28	PA	ULIANÓPOLIS	28.4
9515	38	PA	ULIANÓPOLIS	27.4

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
9530	32	PA	ULIANÓPOLIS	25.5
9289	43	PA	ULIANÓPOLIS	18.9
9532	33	PA	ULIANÓPOLIS	18.6
9285	27	PA	ULIANÓPOLIS	16.2
9249	26	PA	ULIANÓPOLIS	16.0
9193	37	PA	ULIANÓPOLIS	6.5
9344	150	PA	ULIANÓPOLIS	5.7
TOTAL FOR PARÁ STATE				12,811

8.3 – Polygons with Soy in Rondônia State

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
4993	61	RO	ALTO PARAÍSO	42.0
4509	55	RO	ALTO PARAÍSO	41.9
4836	85	RO	ALTO PARAÍSO	19.6
4817	34	RO	ALTO PARAÍSO	9.3
4532	32	RO	ALTO PARAÍSO	8.0
4978	81	RO	ALTO PARAÍSO	6.0
4900	31	RO	ALTO PARAÍSO	5.6
5297	36	RO	ALTO PARAÍSO	4.7
309	106	RO	CABIXI	73.3
375	234	RO	CABIXI	65.8
379	63	RO	CABIXI	59.0
391	104	RO	CABIXI	40.2
373	37	RO	CABIXI	34.6
348	42	RO	CABIXI	30.8
400	63	RO	CABIXI	9.9
422	28	RO	CABIXI	7.8
364	48	RO	CABIXI	4.2
529	75	RO	CEREJEIRAS	67.9
504	62	RO	CEREJEIRAS	58.5
462	53	RO	CEREJEIRAS	52.7
508	67	RO	CEREJEIRAS	52.2
528	49	RO	CEREJEIRAS	42.2
509	43	RO	CEREJEIRAS	37.0
567	35	RO	CEREJEIRAS	27.9
511	28	RO	CEREJEIRAS	27.9

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
449	95	RO	CEREJEIRAS	25.6
533	28	RO	CEREJEIRAS	24.2
486	25	RO	CEREJEIRAS	23.5
510	38	RO	CEREJEIRAS	23.1
470	26	RO	CEREJEIRAS	19.8
704	83	RO	CORUMBIARA	79.2
652	35	RO	CORUMBIARA	34.9
589	31	RO	CORUMBIARA	17.6
451	900	RO	PIMENTEIRAS DO OESTE	570.9
441	389	RO	PIMENTEIRAS DO OESTE	178.6
442	151	RO	PIMENTEIRAS DO OESTE	147.4
424	65	RO	PIMENTEIRAS DO OESTE	62.9
411	50	RO	PIMENTEIRAS DO OESTE	43.8
325	40	RO	PIMENTEIRAS DO OESTE	37.1
464	36	RO	PIMENTEIRAS DO OESTE	35.7
420	91	RO	PIMENTEIRAS DO OESTE	18.3
5202	273	RO	PORTO VELHO	177.7
5169	67	RO	RIO CRESPO	34.7
5132	37	RO	RIO CRESPO	31.1
5122	27	RO	RIO CRESPO	21.5
5014	26	RO	RIO CRESPO	5.7
1630	645	RO	SÃO MIGUEL DO GUAPORÉ	67.9
1767	502	RO	SÃO MIGUEL DO GUAPORÉ	63.6
1633	55	RO	SÃO MIGUEL DO GUAPORÉ	44.4
1613	38	RO	SÃO MIGUEL DO GUAPORÉ	21.3
838	449	RO	VILHENA	125.3
793	203	RO	VILHENA	115.8
981	34	RO	VILHENA	15.5
795	31	RO	VILHENA	8.8
796	97	RO	VILHENA	6.6
TOTAL FOR RONDÔNIA STATE				**2,911**

8.4 – Polygons with Soy in Maranhão State

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
8523	302	MA	AÇAILÂNDIA	302.0
8533	335	MA	AÇAILÂNDIA	277.8

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
8783	193	MA	AÇAILÂNDIA	188.4
8545	137	MA	AÇAILÂNDIA	110.8
8655	104	MA	AÇAILÂNDIA	99.5
8850	183	MA	AÇAILÂNDIA	65.7
8469	61	MA	AÇAILÂNDIA	60.5
8825	83	MA	AÇAILÂNDIA	53.7
8680	67	MA	AÇAILÂNDIA	53.1
8470	59	MA	AÇAILÂNDIA	47.9
8516	46	MA	AÇAILÂNDIA	45.5
8650	57	MA	AÇAILÂNDIA	41.2
8682	46	MA	AÇAILÂNDIA	38.1
8605	40	MA	AÇAILÂNDIA	36.0
8551	69	MA	AÇAILÂNDIA	34.2
8468	73	MA	AÇAILÂNDIA	33.5
8518	31	MA	AÇAILÂNDIA	30.9
8539	34	MA	AÇAILÂNDIA	30.6
8807	93	MA	AÇAILÂNDIA	29.6
8556	46	MA	AÇAILÂNDIA	29.0
8553	27	MA	AÇAILÂNDIA	27.3
8749	37	MA	AÇAILÂNDIA	25.4
8777	29	MA	AÇAILÂNDIA	23.7
8581	30	MA	AÇAILÂNDIA	20.8
8851	27	MA	AÇAILÂNDIA	15.6
8832	32	MA	AÇAILÂNDIA	13.9
8708	90	MA	AÇAILÂNDIA	7.3
8660	99	MA	AÇAILÂNDIA	5.9
8812	111	MA	AÇAILÂNDIA	4.4
8596	510	MA	BURITICUPU	481.3
8601	226	MA	BURITICUPU	223.7
8577	107	MA	BURITICUPU	107.5
8755	189	MA	BURITICUPU	103.5
8697	94	MA	BURITICUPU	71.6
8793	70	MA	BURITICUPU	66.6
8612	97	MA	BURITICUPU	64.4
8750	88	MA	BURITICUPU	63.8
8758	61	MA	BURITICUPU	59.6
8555	49	MA	BURITICUPU	49.1
8765	51	MA	BURITICUPU	43.6
8717	33	MA	BURITICUPU	33.2

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
8571	32	MA	BURITICUPU	31.6
8761	30	MA	BURITICUPU	30.4
8734	34	MA	BURITICUPU	27.9
8738	29	MA	BURITICUPU	22.7
8784	33	MA	BURITICUPU	22.6
8564	29	MA	BURITICUPU	19.7
8796	29	MA	BURITICUPU	17.9
8827	125	MA	BURITICUPU	4.4
8837	666	MA	ITINGA DO MARANHÃO	523.1
9186	377	MA	ITINGA DO MARANHÃO	273.5
8910	96	MA	ITINGA DO MARANHÃO	88.4
8959	75	MA	ITINGA DO MARANHÃO	68.6
8939	59	MA	ITINGA DO MARANHÃO	53.3
8814	69	MA	ITINGA DO MARANHÃO	50.8
9190	60	MA	ITINGA DO MARANHÃO	37.7
8937	33	MA	ITINGA DO MARANHÃO	33.3
8981	294	MA	ITINGA DO MARANHÃO	23.2
8926	56	MA	ITINGA DO MARANHÃO	18.3
8950	42	MA	ITINGA DO MARANHÃO	15.9
8965	54	MA	ITINGA DO MARANHÃO	13.7
8998	39	MA	ITINGA DO MARANHÃO	7.5
TOTAL FOR MARANHÃO STATE				**2,911**

8.5 – Polygons with Soy in Amapá State

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
10800	32	AP	MACAPÁ	30.3
10802	29	AP	MACAPÁ	28.3
TOTAL FOR AMAPÁ STATE				**59**

8.6 – Polygons with Soy in Roraima State

ID	Area of Polygon (hectares)	State	Municipality	Area of Soy (hectares)
10889	30	RR	ALTO ALEGRE	8.9
TOTAL FOR RORAIMA STATE				**9**

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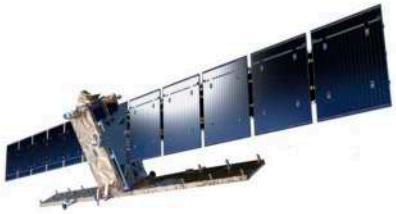

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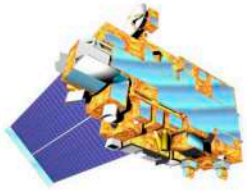

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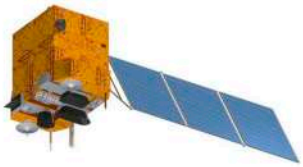

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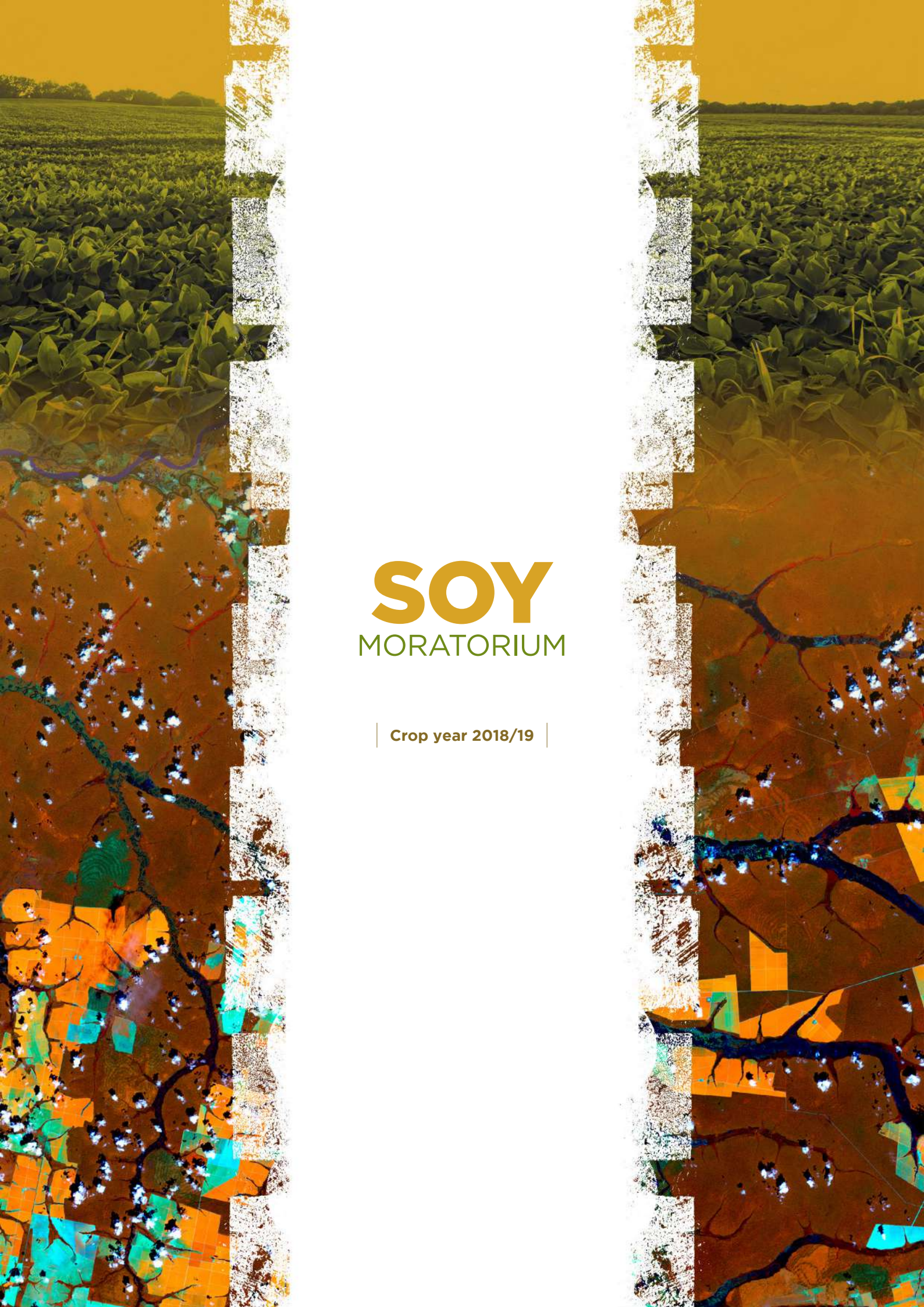

SOY MORATORIUM

Crop year 2018/19