

ENVIRONMENTAL MANAGEMENT PLAN

SUSTAINABILITY



GOIASA







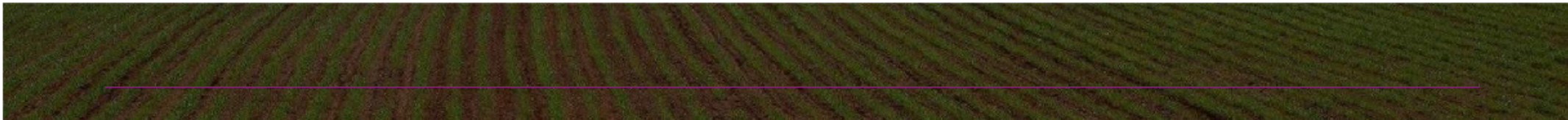
BIODIVERSITY



BIODIVERSITY



ECOSYSTEM SERVICES



USE OF AGROCHEMICALS

- Storage of agrochemicals in a suitable place;
- Application of products registered by the Ministry of Agriculture, in doses according to the Agronomic Prescription;
- Follow the application limits in accordance with Environmental Legislation;
- Carry out triple washing of packages and return them to accredited cooperatives and;
- Control residues in the finished product

- Marked replacement of chemicals by biological products (Organic Agriculture)

These are criteria adopted to ensure the proper use of inputs so that there is no contamination of areas of native vegetation, water sources, damage and inconvenience to the fauna and surrounding communities.









WASTE

At GOIASA, actions such as: guidance for employees to reduce waste, implementation of selective collection, tracking and logistics of waste destined for specific treatment, assurance of proper final destination and with respect to the Environment, are ways to guarantee good efficiency in the Waste Management Plan.

Environmental Management Plan - EMP AGRICULTURAL 2022

Item	Theme	Environmental Impact	Control Measures	Goals	Progress	Actions to be carried out Crop 2023
1	ECOSYSTEM SERVICES	Deforestation-Fauna and Flora Change – Water scarcity.	- Monitoring of flora/fauna; - Reforestation; - Awareness of employees/service providers and the community surrounding the enterprise.	Planting of 12,968 seedlings in 2021 (January-Dec).	Target partially met (6,561 seedlings planted).	Planting of native seedlings / Recomposition of PPA and Spring areas.
2	BIODIVERSITY	FAUNA Running over wild animals; Fauna change; Reduction of the biotic environment (habitats).	- Integration of Goiasa Employees and Service Providers; - Selection of areas for reforestation.	Plant 1,944 seedlings (15% of the total native species planted in 2021) that bear fruit.	2,020 seedlings planted.	Introduce native fruit-bearing species for attracting fauna and dispersing seeds (pollinating species).
				1. Carry out 02 campaigns for raising awareness about fauna and prevention with employees and the community. 2. Six (06) occurrences registered involving wild fauna.	1. Due to the pandemic period, it was not possible to carry out campaigns in 2021; 2. Two (02) occurrences registered until October/2021.	Installation of Fauna Preservation Signs near crossings in the native vegetation areas; Formation of Ecological corridors, Raising awareness among employees and the surrounding community; Update macro fire criticality map of the areas.
		FLORA Deforestation-Biodiversity Change – Scarcity of water, habitat and food for the fauna.		Planting of 12,958 seedlings in 2021 (January-Dec).	Target partially met (6,561 seedlings planted).	Planting of native seedlings / Recomposition of PPAs and Spring areas.
3	SOIL	Change in the environmental quality of soil / Erosion	Monitoring of the vinasse conductive network.	100% of the vinasse conduits piped until the 2026 crop (Canal Zero Project).	85% Completed.	Deactivate/destroy the open-air channels and install water main (pipe) for vinasse.
			Monitoring of the environmental quality of soil (analysis), see CETESB Technical	100% of the analyzed parameters are within the limit established by CETESB	2020 - Analysis performed Analytical Report 47754/2020.1 and Analytical Report	Carry out environmental analyzes at 02 points defined in the Soil Quality Environmental Monitoring

Environmental Management Plan - EMP AGRICULTURAL 2022

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			Standard Reference P4.231 and Environmental Monitoring Plan – Goisa.	Standard No. 256/2016.	47755/2020.1 within the parameter.	Plan.
			Monitoring of the levels of vinasse tanks.	Zero overflow occurrence.	Completed - Zero occurrences until October/2021.	Implement control methodology for effluent extravasation and monitor the volume of effluents in vinasse storage tanks.
			Use of technique in arable areas where there are no environmental liability.	100% of the agricultural partnership areas are environmentally regularized.	100% of the analyzed areas with no environmental impasses.	Carry out technical environmental inspection in new areas to be systematized for soil preparation and use.
4	WATER	Change in the environmental quality of water / depletion of Natural Resources	Monitoring of surface water in fertigated areas.	Assessment of the quality of water in all points under analysis should be between "Good" and "Excellent" according to the IQA (Water Quality Index).	Completed - The quality of water at the points sampled in 2021 was between "Good" and "Excellent". Notes: Collection 1 semester of 2022 scheduled for May 2022.	Carry out environmental analyzes at 10 points defined in the Water Quality Environmental Monitoring Plan.
			Assessment of progress of recovered (reforested) areas.	Recovery of Springs located in Bom Jesus Stream Basin.	10% completed in 2022	Chafariz Project – Aims at the recovery of water sources.
5	AIR	Change in the quality of air	Monitoring the emission of black smoke from vehicles, machinery, and equipment, using the Ringelmann Scale.	100% adherence of vehicles maintained according to the Service Orders (OS) of the Preventive Maintenance Plan (PMP).	33.33% completed in 2022	Weekly monitoring of compliance with the PMP of vehicles and implements powered by Diesel. Weekly presentation
			Carry out colorimetric density monitoring of 100% of its own and third-party fleet of diesel-powered vehicles.			

Environmental Management Plan - EMP AGRICULTURAL 2022

Item	Theme	Environmental Impact	Control Measures	Goals	Progress	Actions to be carried out Crop 2023
6	CLIMATE CHANGE	Greenhouse Effect / Global Warming / Deforestation / Fauna and Flora Change.	<p>Verification/analysis of areas available for planting sugarcane (agricultural expansion);</p> <p>Management, control, and execution of systematization processes according to the planting layout "Reform and Expansion Areas".</p>	Zero occurrence of suppression of native vegetation in areas with sugarcane fields.	<p>100% of the target achieved by April/2022.</p> <p>Notes: Transmission line is not accounted for in this item.</p>	<p>Establish sugarcane planting layout aiming at the protection of native vegetation (PPA, LR and isolated trees - sparse);</p> <p>Inspect all areas undergoing agricultural expansion and point out the trees within the property or sugarcane plantation area;</p> <p>Inform partners, sugarcane suppliers and service providers about the protection of native vegetation in areas with availability for sugarcane plantations.</p>
			Fulfillment of Bonsucro metric protocol through Bonsucro Calculator.	Meet the goal of the GHG Calculator Bonsucro	Note 2022 as standard.	Maintenance of good agricultural practices and training in monitoring and calculating Greenhouse Gas Emissions.
7	USE OF AGROCHEMICALS	Change in the quality of water / soil / fauna / flora	<ul style="list-style-type: none"> - Store agrochemicals in a suitable place. - Apply as needed without excess. - Apply doses recommended by the manufacturer and registered by the Ministry of Agriculture. - Carry out triple washing of packages. 	Achieve 100% compliance with the ISSMA's regarding the storage and handling of pesticides in cultivation areas.	100% Completed by April/2022.	<ul style="list-style-type: none"> - Carry out storage of agrochemicals in suitable places (before, during and after use); - Replacement of agrochemicals by biological products; - Carry out triple washing of empty packaging and provide for environmentally correct destination

Environmental Management Plan - EMP AGRICULTURAL 2022

Item	Theme	Environmental Impact	Control Measures	Goals	Progress	Actions to be carried out Crop 2023
			<ul style="list-style-type: none"> - Discard packaging through returns in accredited cooperatives. -Disinfection of infested areas. - Technical Recommendations Dossier. - Residual control in the finished product. 			<p style="text-align: center;">of packaging;</p> <ul style="list-style-type: none"> - Follow the limits of agricultural application respecting the applicable Legal Requirements.
8	USE OF ARTIFICIAL FERTILIZERS	Change in the quality of water / soil / fauna / flora	<ul style="list-style-type: none"> - Perform soil analysis to verify the real nutritional needs of the soil. - Apply doses according to the analysis report and expectations of sugarcane productivity. 	Ratio of N, P and K fertilizer applied to recommended N, P and K fertilizer ≤ 1.05	100% met, result in 0.9959.	Application Map Quality Adherence.
9	SUGARCANE BURN	Air Quality Change; Change in Fauna/Flora/Soil Organic Matter	<ul style="list-style-type: none"> - Firebreaks (to reduce the size of fire); - Collection of straw; - Use of fire as a countermeasure; - Combat structure; - Strategic dams; - Fire fighting tactics (firefighters); - Fire Fighting Training for rural producers and rural 	Reduce fire occurrences by 10% in relation to the lowest number of occurrences in the last 5 years.	<p>Period from Mar/2014 to Mar/2015: 80 occurrences.</p> <p>Period from Mar/2015 to Mar/2016: 96 occurrences.</p> <p>Period from Mar/2016 to Mar/2017: 87 occurrences.</p> <p>Period from Mar/2017 to Mar/2018:</p>	<ul style="list-style-type: none"> - Environmental education with the school community, Unions, CDL, religious entities and the like, addressing topics such as bonfires, cigarettes, maintenance of machinery and equipment, vandalism, proper disposal of garbage, etc. - Anti-smoking Program; - Smoking areas; - Mobile Surveillance: patrols;

Environmental Management Plan - EMP AGRICULTURAL 2022

Item	Theme	Environmental Impact	Control Measures	Goals	Progress	Actions to be carried out Crop 2023
			<p>community;</p> <ul style="list-style-type: none"> - Mobile Surveillance: patrols; - Fixed surveillance: Cameras; - Firebreaks in sugarcane plantations; - Provide technical improvement, integration and exchange of information. 		<p>56 occurrences.</p> <p>Period from Mar/2018 to Mar/2019: 50 occurrences.</p> <p>Period from Mar/2019 to Mar/2020: 59 occurrences.</p> <p>Period from Mar/2020 to Mar/2021 39 occurrences.</p>	<ul style="list-style-type: none"> - Fixed surveillance: Cameras; - Firebreaks in sugarcane plantations.
10	NOISE	Displacement of fauna	<p>Acquisition of equipment equipped with new technologies, in compliance with CONAMA Resolution 433/2011.</p> <p>Note: The obligation to comply with the noise limits imposed in this Resolution does not apply to agricultural machinery.</p>	<p>100% of the agricultural machinery and equipment fleet is approved by PROCONVE.</p>	<p>Concluded.</p>	<p>Acquire (purchase) agricultural machinery and equipment approved by PROCONVE.</p>
			<p>Monitor environmental noise in the surroundings of the project according to current technical standard (ABNT NBR 10.151:2019 and CONAMA Resolution No. 01 of March 8,</p>	<p>Compliance with the legal requirement in its entirety.</p>	<p>Service pre-scheduled for June/2022.</p> <p>Note: Purchase Order: 3000020993</p>	<p>Assess the results obtained and propose applicable control measures.</p>

**Environmental Management Plan - EMP
AGRICULTURAL 2022**

Item	Theme	Environmental Impact	Control Measures	Goals	Progress	Actions to be carried out Crop 2023
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Environmental Management Plan - EMP INDUSTRY 2022

Item	Theme	Environmental Impact	Control Measures	Goals	Progress	Actions to be carried out Crop 2023
1	ECOSYSTEM SERVICES	Change in the environmental quality of water and / or soil	Reuse of sugarcane bagasse as a fuel source in boilers to generate electricity.	Sell 57,183.5 MW of surplus energy produced in the boilers.	Accomplished 2021: 60,630.15 MW BSC Software Quality Indicator: 12133.	Goal adjustment according to Strategic Plan.
2	BIODIVERSITY	Destruction of natural habitats.	Carry out monitoring (assessment) of reforested areas.	Plant 20 hectares of native species.	15.9 hectares planted until October 2021.	Planting of native seedlings / Recomposition of PPAs and Spring
3	SOIL	Change in the environmental quality of soil	Inspection of tanks for storage of chemical products and inputs and their respective containment basins.	100% of the containment basins and tanks of chemical products and inputs inspected.	Completed – All basins were inspected in 2022.	Carry out inspections in the tanks and containment basins for storage of hazardous products and inputs in the industrial area of Goiasa.
				100% of the containment basins and tanks of chemical products and inputs are in conditions of use.	Basins identified by ISSMA or inspections in the areas that presented N.C., are in the process of maintenance - in progress.	
				Zero occurrence of soil contamination through spillage of hazardous products and inputs in the industry.	There were no environmental incidents in that period.	
4	WATER	Depletion of Natural Resources	Monitoring of water consumption in the sugarcane milling process (Ratio L/ton of processed sugarcane).	Map the springs of hydrographical basins of Bom Jesus and Santa Bárbara Streams.	100% completed as per the Water Modeling Study.	Develop strategies for recovery and revitalization of mapped sources.
5	AIR	Change in the air Quality (Boilers and Diesel-Powered Vehicles) / Indoor Air (Air-conditioned Environments)	Ensure that the Maintenance, Operation and Control Plan - MOCP is being complied with and that the air conditioners are not harming the health of employees; Boiler operation using a Gas	100% of air conditioning equipment underwent maintenance according to MOCP; Compliance with CONAMA 436/2011 parameters - Annex	Completed - All air conditioners are inspected as per the MOCP. Of the 67 monitored points, 35 did not meet the CO2 parameter, 1 did not meet the	Comply with the actions established in the MOCP; Conduct annual monitoring of air-conditioned environments, in accordance with RE/ANVISA Resolution – No. 09 – Reference

Environmental Management Plan - EMP INDUSTRY 2022

Item	Theme	Environmental Impact	Control Measures	Goals	Progress	Actions to be carried out Crop 2023
			<p>Washer;</p> <p>Annual analysis of atmospheric emissions according to Resolution (MP and NO2) / Monitoring of colorimetric density of smoke from Boilers.</p>	<p>III;</p> <p>Compliance with Resolution - RE No. 9, of 01/16/2003.</p>	<p>temperature parameter and 08 did not meet the humidity parameter. - Dealings being carried out by the responsible area with the Superintendence.</p> <p>Completed - The NO2 and MP parameters meet the provisions of CONAMA Resolution 436/2011 - Annex III.</p> <p>Notes: Monitoring of indoor air quality for the first half of 2022 is scheduled for May 2022.</p>	<p>Standards for Indoor Air Quality in Environments Artificially Air-conditioned for Public and Collective use and in compliance with the Environmental Monitoring Plan.</p> <p>Carry out annual analyzes of the parameters indicated in CONAMA 436/2011 - ANNEX III.</p> <p>Monitoring of indoor air quality and environments artificially conditioned for collective use, in compliance with Resolution - RE No. 9, of 01/16/2003.</p>
6	CLIMATE CHANGE	Greenhouse Effect / Global Warming	Monitoring of colorimetric density of diesel-powered vehicles (third-party and its own fleet) that transit the Industrial Park and areas of direct influence (surroundings).	Carry out colorimetric density monitoring of 100% of its own and third-party fleet of diesel-powered vehicles.	33.33% - The fleet of vehicles of third-party companies (diesel-powered) are monitored and the forms are delivered to the Legal and Environment Department. Own fleets are monitored according to the Preventive Maintenance Plan.	Carry out fleet monitoring of vehicles powered by Diesel, following the periodicity criteria defined in the Maintenance Plans.
7	Use of Agrochemicals	Packaging waste - Change in the quality of water and/or soil.	Carry out triple washing, store temporarily in a place with a covered area, waterproof floor and restricted access and send it to INPEV Morrinhos.	Allocate 100% of waste generated to INPEV Morrinhos.	33.33% – No occurrences of incorrectly disposed waste.	Carry out monitoring of shipments and maintain a target of 100% destination.

Environmental Management Plan - EMP INDUSTRY 2022

Item	Theme	Environmental Impact	Control Measures	Goals	Progress	Actions to be carried out Crop 2023
			Fulfillment of Bonsucro metric protocol through Bonsucro Calculator.	Goals for the use of industrial inputs according to the Calculator item.	Note 2022 as standard.	Maintenance of good industrial practices.
8	Use of Artificial Fertilizers	Change in the quality of surface water due to percolation of fertilizers.	Monitoring of the Quality of Surface Water at 10 points, in areas of direct and indirect influence.	Maintain the quality of surface water between "GOOD" and "EXCELLENT", according to criteria of the IQA tool - Water Quality Index	Result 2021 1st Semester 2 points "GOOD" and 8 points "EXCELLENT". Notes: Collection 2022 – Scheduled for May.	Maintain good application practices as well as monitoring of water resources.
9	Noise	Hearing loss	Make PPE available in places that exceed 80dB. Carry out an assessment of noise agents in the Industrial Park, in points with greater exposure of workers.	100% of employees without hearing loss, due to work activities.	Completed - Noise monitoring is carried out in the Industrial Park / Auditmetry Exams.	Monitoring industrial plant noise, in accordance with current legislation.
10	Waste	Change in the Quality of water and / or soil.	Carry out temporary storage of waste in drums approved by INMETRO, with a lid, seal, identification and in waterproofed areas with cover (Goiasa Waste Center); Provide environmentally correct disposal of such waste to third-party companies that have an Environmental License to do so. Enforce all Environmental Legislation applicable with regard to the	Reduce by 5% the generation of contaminated waste (Class I) compared to 2021. Generation in 2021: 34,270.00 Kg. Goal for 2022: 32,557.00 kg; Cardinality: Lower – Better.	Quantity generated until Apr/2022: 7,200.00 Kg (22.11%).	Develop actions to reduce the generation of contaminated waste. Involve the operational areas (Participative Management) to define mitigating actions. Develop an Environmental Education Program in order to promote actions for environmental awareness of all Goiasa employees, promoting the reduction of waste and continuous improvement in the Organization.

Environmental Management Plan - EMP
INDUSTRY 2022

Item	Theme	Environmental Impact	Control Measures	Goals	Progress	Actions to be carried out Crop 2023
			storage, transport and destination of waste.			

The logo for GOIASO is displayed in white on an orange background. The letters 'G', 'O', 'I', 'A', 'S', and 'O' are stylized with curved arrows indicating a circular or clockwise flow. The 'G' has an arrow pointing up and right, the first 'O' has an arrow pointing up and left, the 'I' has an arrow pointing up and right, the 'A' has an arrow pointing up and left, the 'S' has an arrow pointing up and right, and the second 'O' has an arrow pointing up and left.

