



The Business Case for Mill Compliance with and Certification to the Bonsucro Production Standard

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Presentation outline

- Introduction: Brazilian Sugarcane production, context of Bonsucro and research objectives
- Methodology and data collection
- Results
- Conclusions and recommendations

Introduction

Brazilian Sugarcane production, context of Bonsucro and research objectives

Sugarcane production in Brazil is differentiated by region as well as ownership and management

Brazil			
Annual Crushing (1,000 t/mill)	Harvested Area (1,000 ha/mill)	Yield (t/ha)	Number of mills
560,994 ¹	8,224 ²	68.2	427

Northeast and North	
Brazil production share	10%
Mills profile	<ul style="list-style-type: none"> • Traditional and family mills • Low mechanized

Mills' production

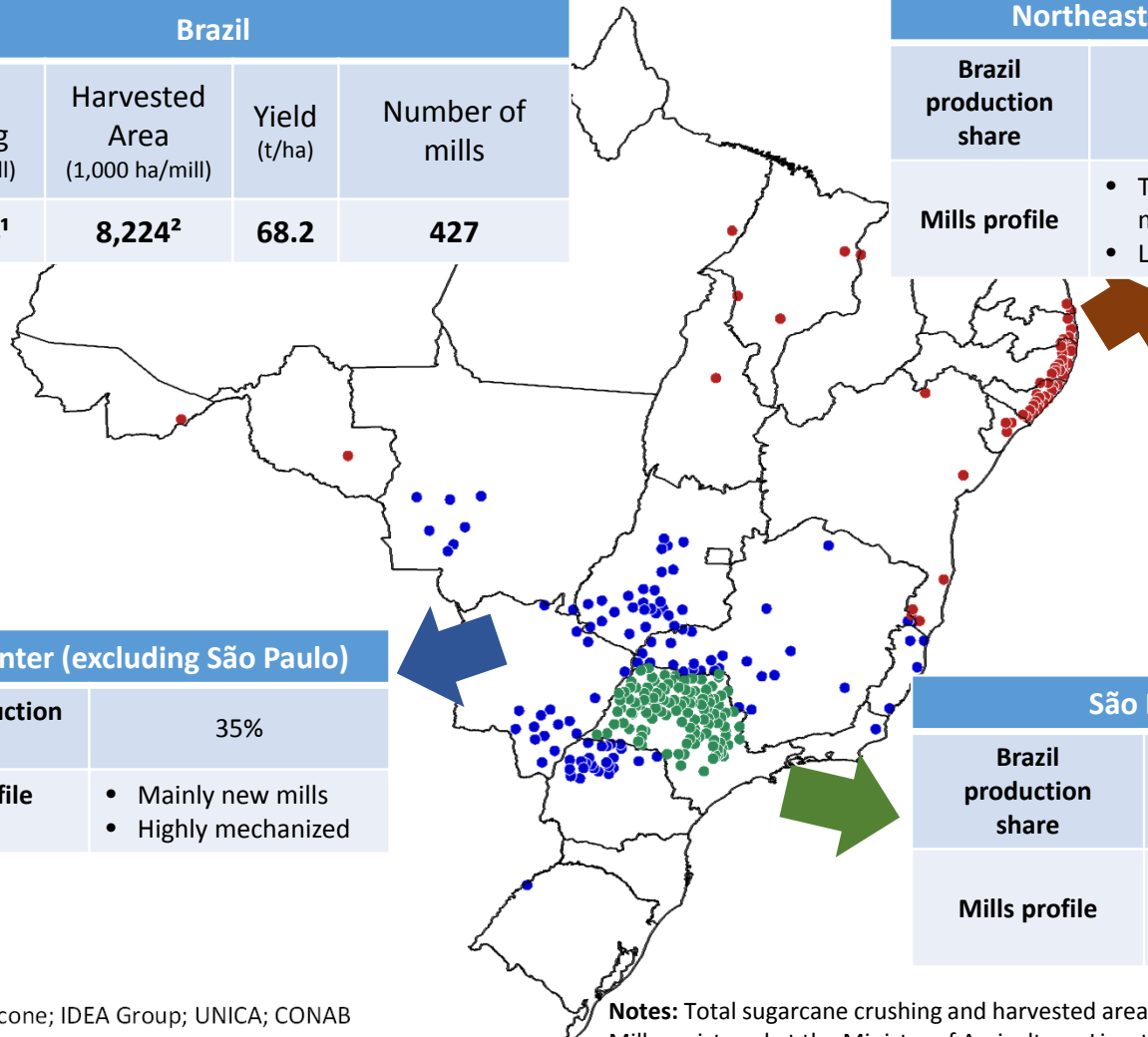
- The number of registered mills increased by 41% in São Paulo, 73% in other South-Center states and 9% in the Northeast (2006-2014).
- After a 5 years cycle of strong investments in greenfields (2005 to 2011), the sector is facing structural adjustments with old and low scale mills being shutdown.

Ownership and Management

- Around 80% of mills in São Paulo are owned and run by large groups (those owning several mills such as Bunge, Odebrecht, Raizen, Guarani-Tereos). This percentage is smaller in South Center (60%) and Northeast (54%)

South Center (excluding São Paulo)	
Brazil production share	35%
Mills profile	<ul style="list-style-type: none"> • Mainly new mills • Highly mechanized

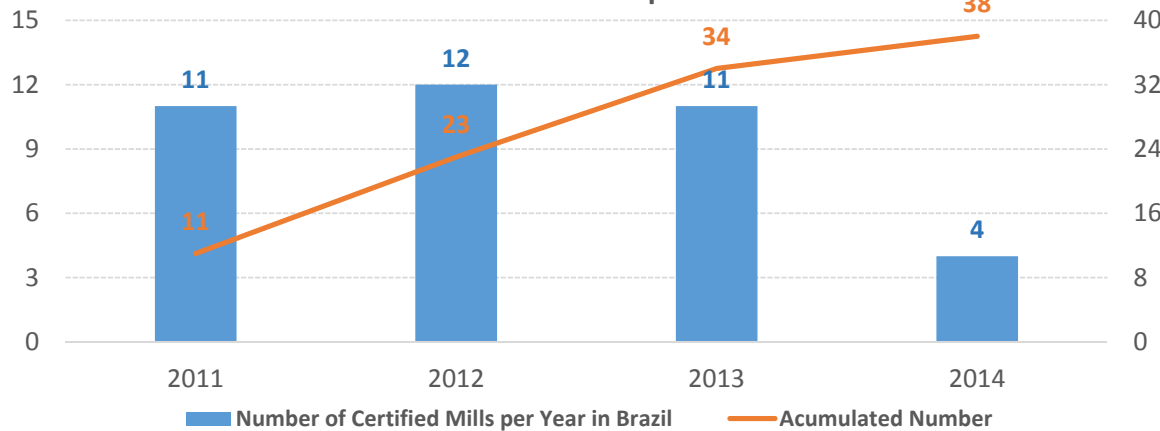
São Paulo	
Brazil production share	55%
Mills profile	New (greenfield) and traditional mills



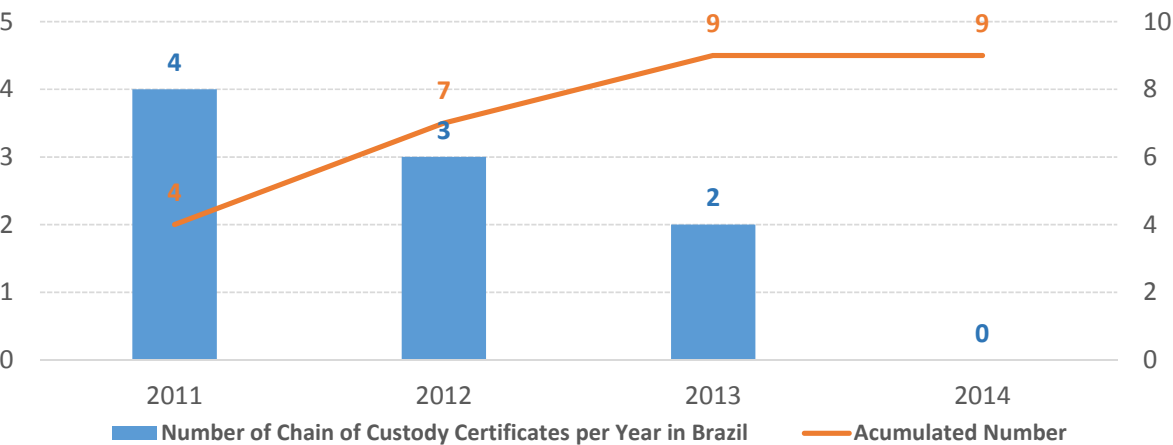
Notes: Total sugarcane crushing and harvested area in 2011/12 season in Brazil. Mills registered at the Ministry of Agriculture, Livestock and Food Supply (MAPA).

Bonsucro certification in Brazil is stable and facing market challenges

Number of Certified Mills per Year in Brazil



Number of Chain of Custody Certified per Year in Brazil



- The total supply of certified volumes has increased, but at an ever-decreasing rate. In 2014 the number of certified mills decreased compared to the previous years, including the number of new mills. In 2012, there were 5 new mills certified, this number was reduced to 2 in the next 2 years.
- Demand for certified products has not followed supply and mills are facing problems to sell and thus obtain margins.
- A business case for mills compliance and certification is important for guiding Bonsucro strategy in Brazil.

The Business Case for Mill Compliance with and Certification to the Bonsucro Production Standard

1. What is the business case for reaching compliance with the Bonsucro Production Standard?

- Costs and benefits of sugar/ethanol in compliance and not in compliance with Bonsucro
- Environmental, labor and other extra costs for compliance with Bonsucro

2. What is the business case for **validating compliance** with the Bonsucro Production Standard **through third party certification**?

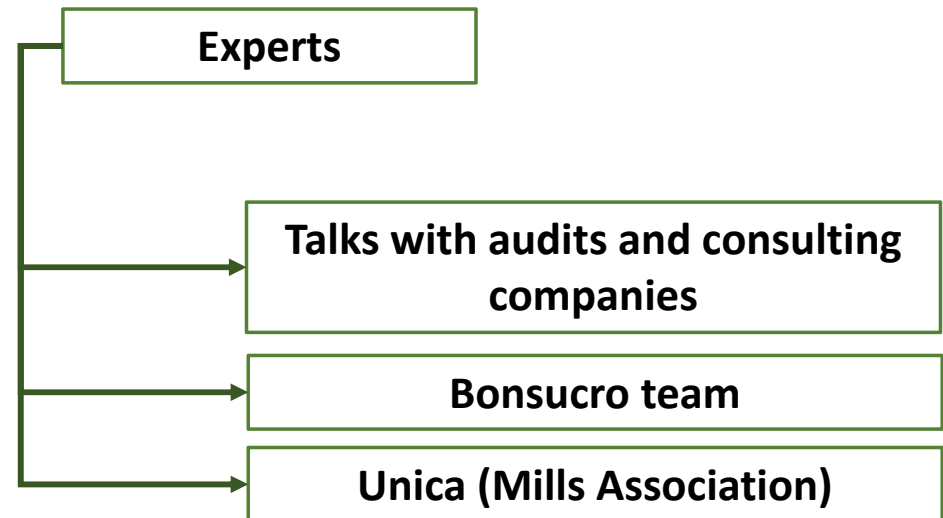
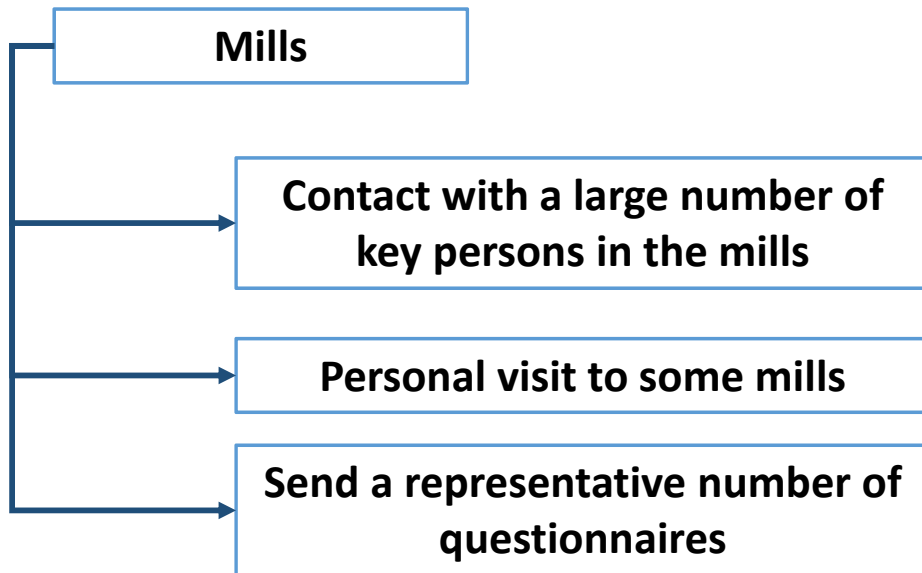
- Costs and benefits of sugar/ethanol validated and not validated through certification
- Costs and benefits of implementing managing control systems and certification costs

3. What are identified **opportunities to increase the appeal of compliance and certification** with Bonsucro from mill perspective?

- How to decrease costs? How to increase benefits?
- How improved managing practices can become opportunities for mills?

Methodology and data collection

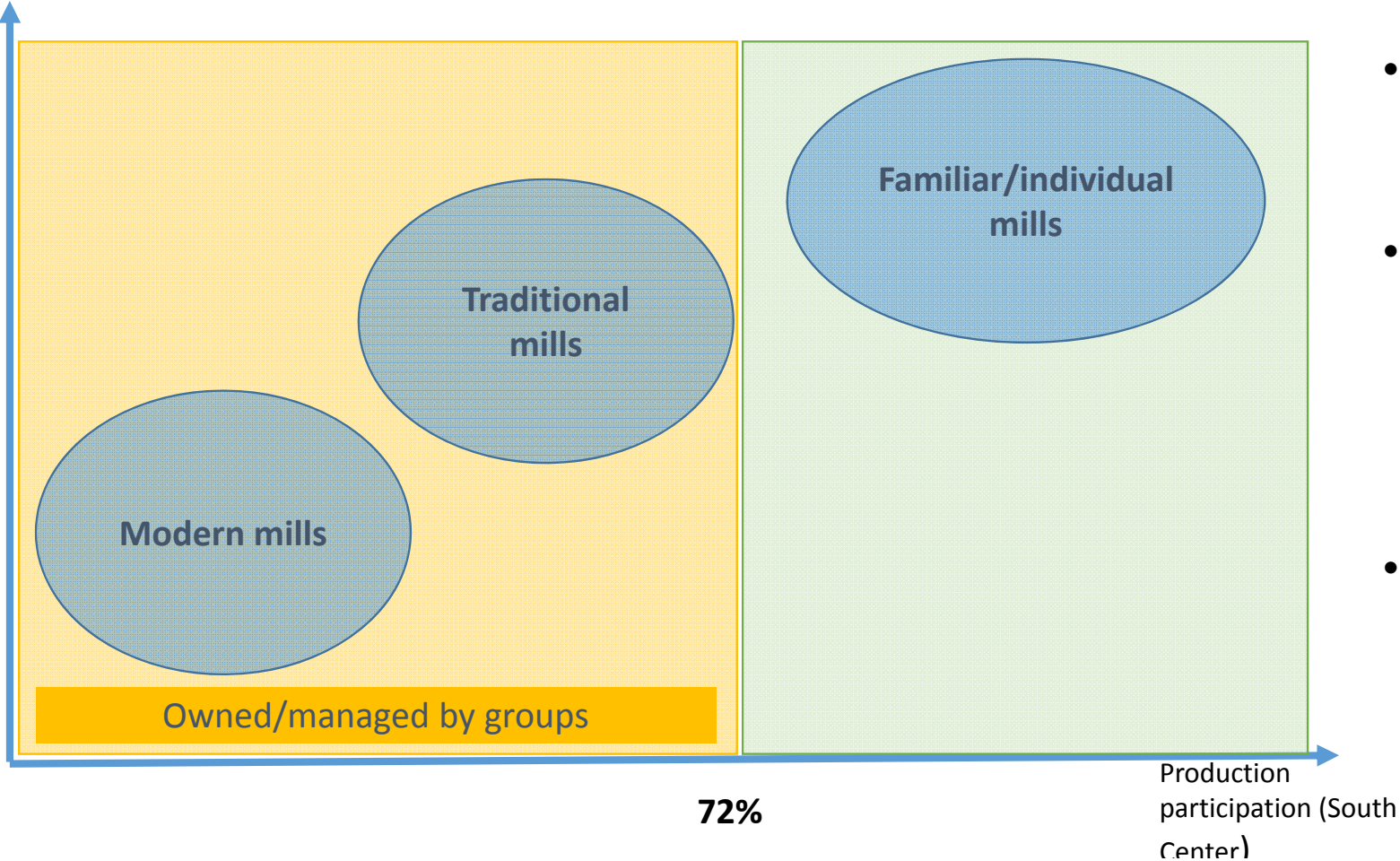
Data collection was based on mills interviews and questionnaires and supported by talks with experts



- We focus data collection on Bonsucro members, both certified and non certified.
- We approached 6 groups, with 79 mills, representing 74% of Bonsucro members, both certified and non certified.
- Finally, we got 12 mills (questionnaires) in our sample.

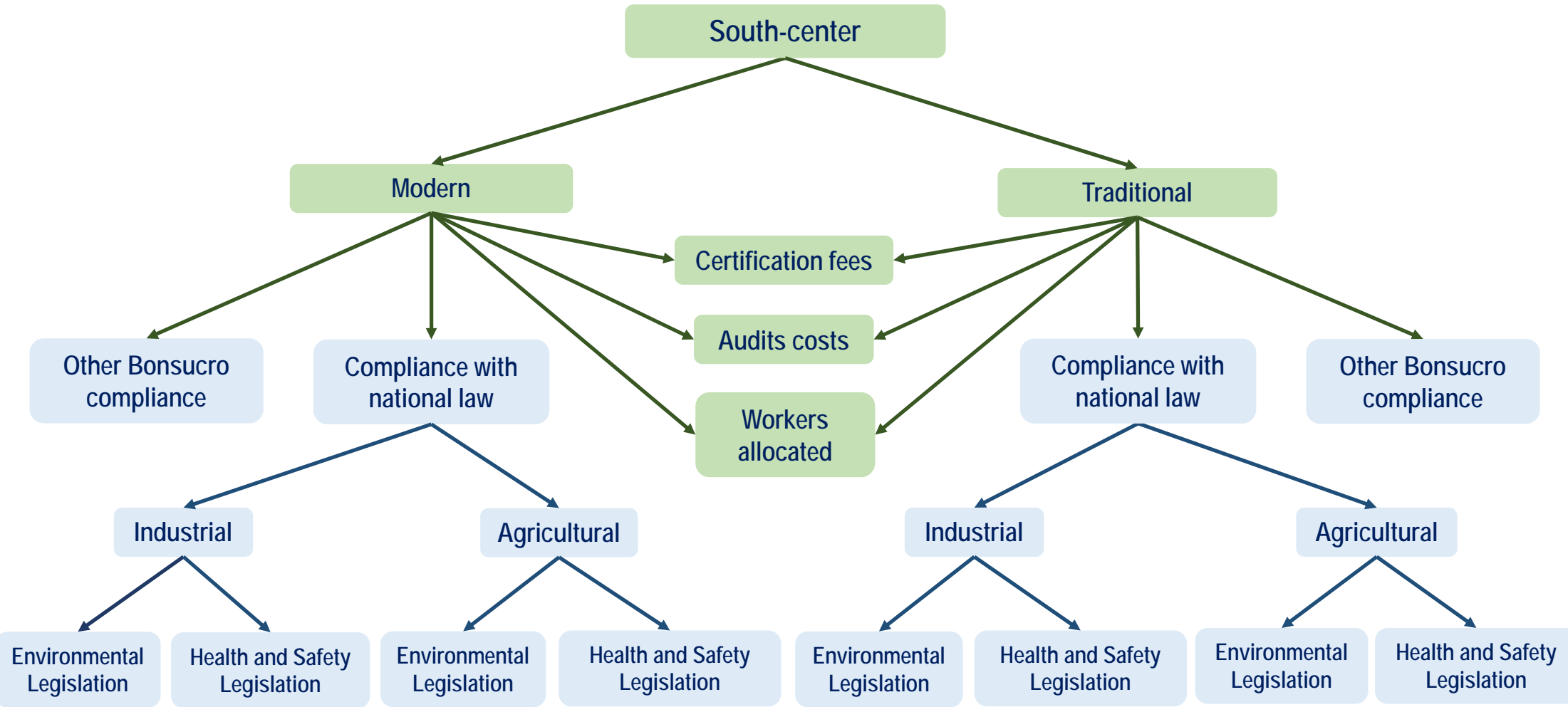
The sample is composed by mills owned and managed by large groups and Bonsucro members which represent the production majority and more efficient mills

Investment needs for compliance

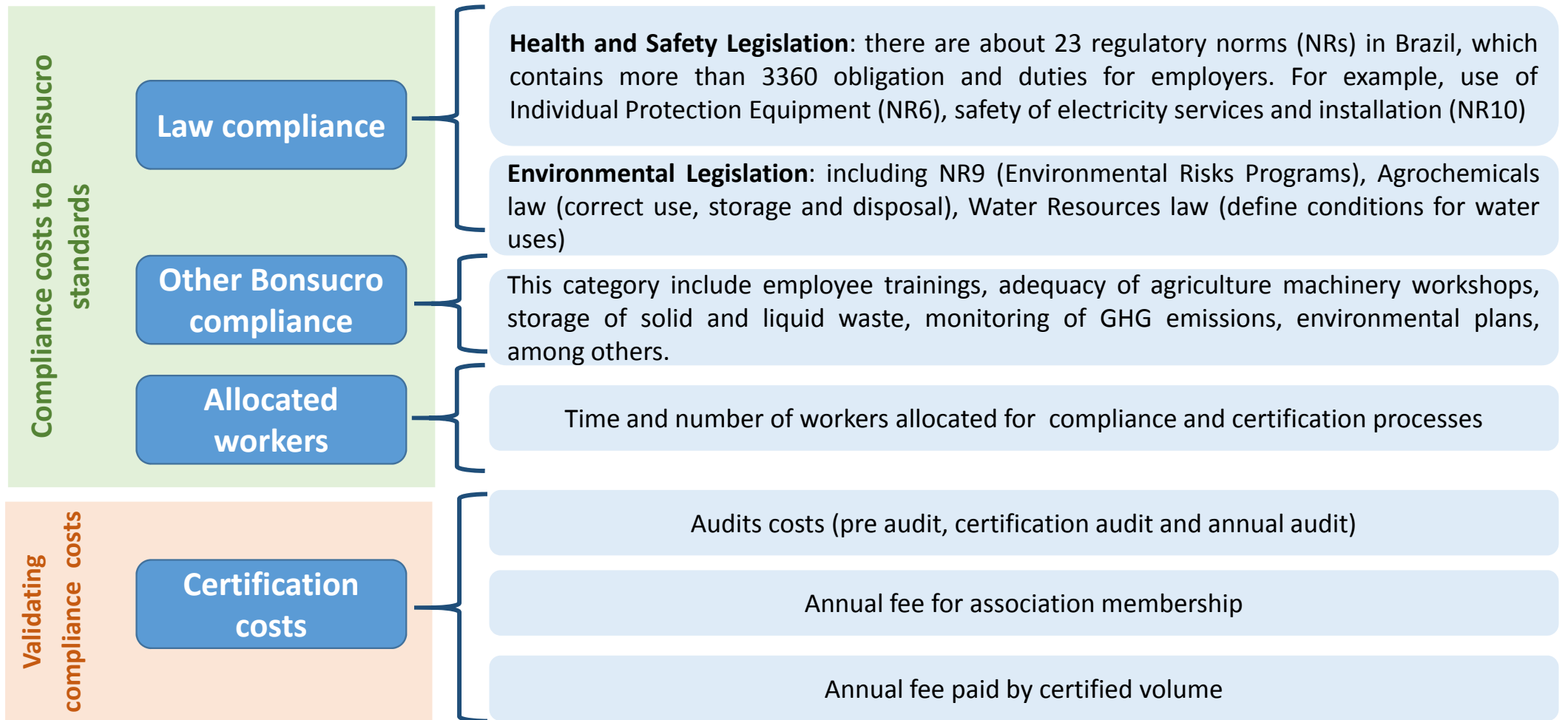


- The sample is expected to be more efficient and with lower investment needs for compliance.
- Within the mills owned by groups, the ones that are Bonsucro members are expected to be more willing to certified. Then, costs for certification may also be lower
- Besides costs differentials, there are also discrepancies in terms of capacity to invest. Generally, groups have more access to capital (own or borrowed)

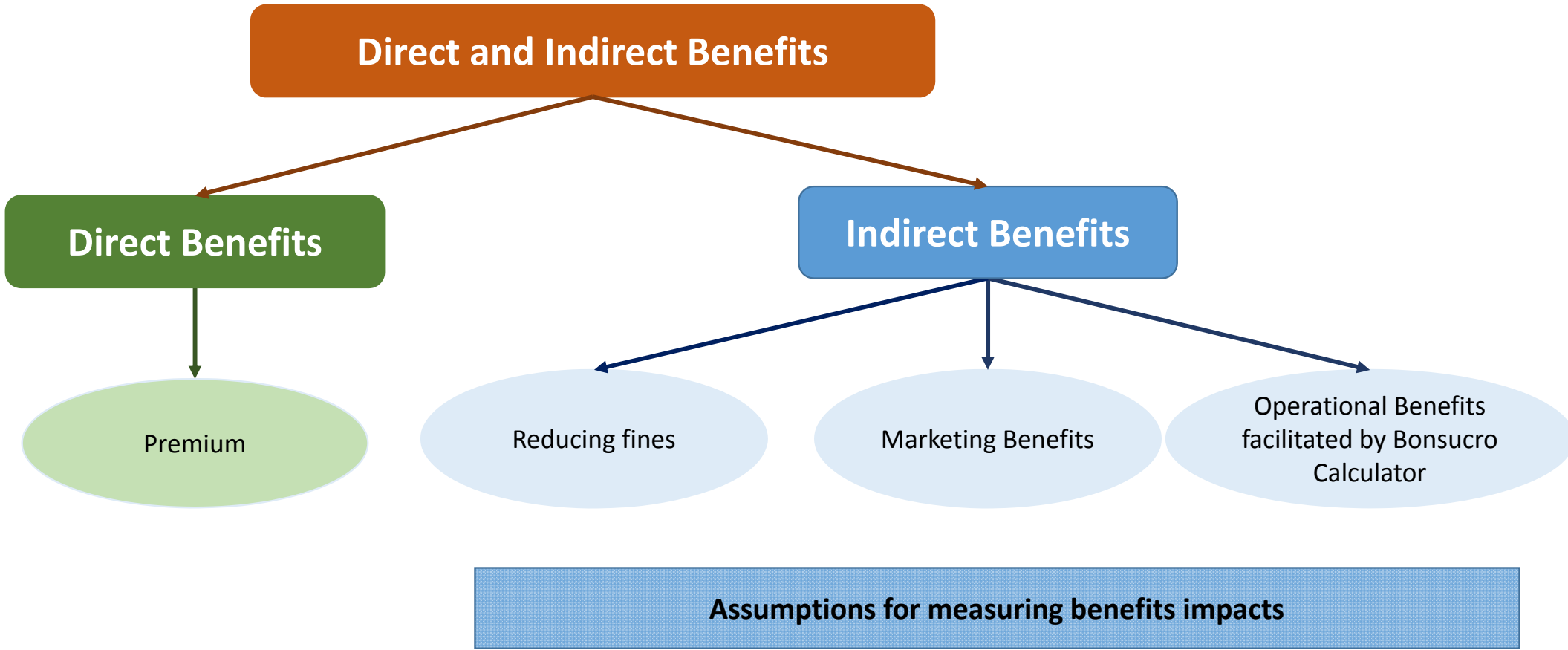
Methodology to measure Bonsucro compliance and certification costs



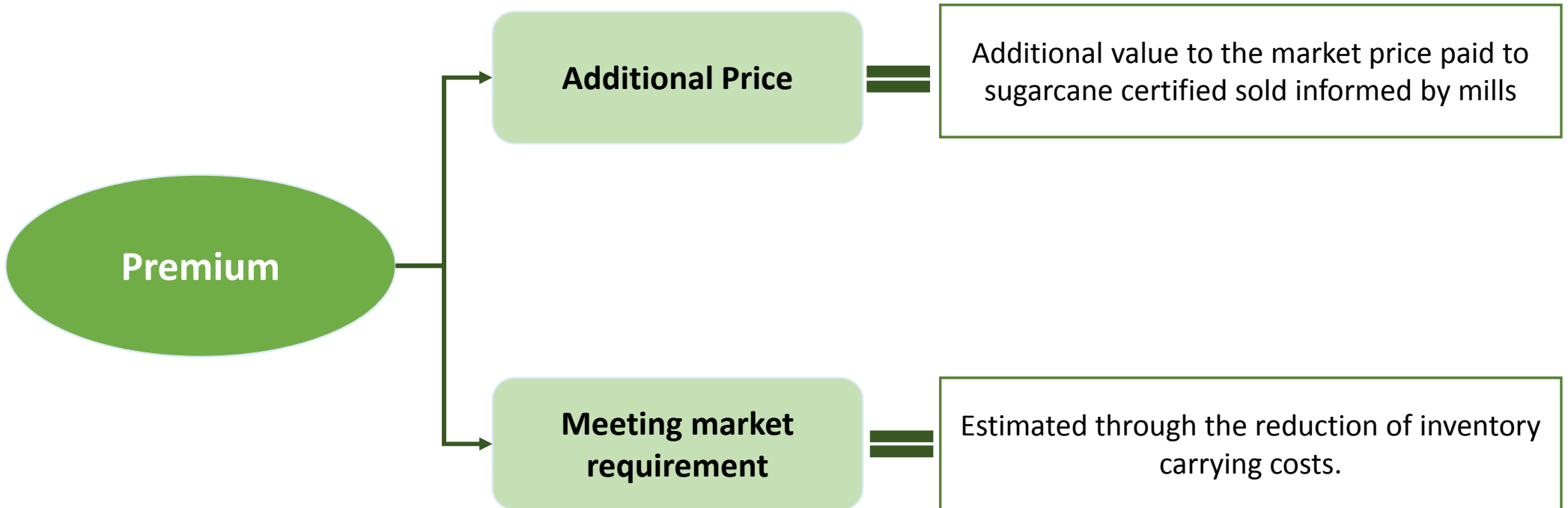
Costs for certification are divided in four categories: law compliance, compliance with Bonsucro standards, allocated workers and certification costs



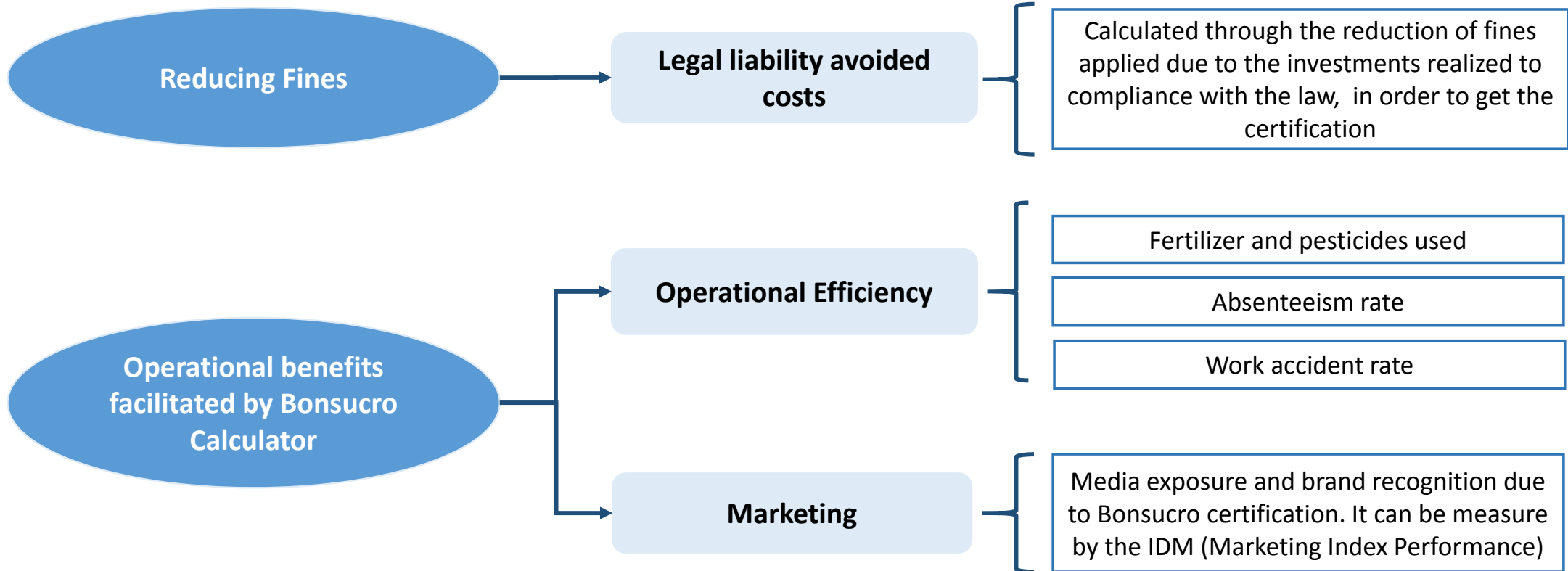
Certification benefits indicated by mills are divided in direct and indirect benefits



Additional price and meeting market requirement are the main direct benefits



Reducing fines and management improvement are the main indirect benefits



How to measure the costs and benefits of Bonsucro certification?

Several costs related to legal compliance are one time investments whereas the benefits are recurrent

NPV, IRR and Pay-back

T=0

- Investments to compliance with law
- Investments to compliance with other Bonsucro requirement
- Auditors
 - Pre audit (optional)
 - Certification audit
- Bonsucro fees
 - Member associated
 - Volume certified

T=1

- Training Employees
- Auditors
 - Annual audit
- Bonsucro fees
 - Member associated
 - Volume certified

- Premium
- Marketing benefits

- Operational Efficiency
- Legal liability avoided costs

T=2

- Training Employees
- Auditors
 - Recertification audit
- Bonsucro fees
 - Member associated
 - Volume certified

- Premium
- Marketing benefits

- Operational Efficiency
- Legal liability avoided costs

T=3

T=4

T=5

- Training Employees
- Auditors
 - Annual audit
- Bonsucro fees
 - Member associated
 - Volume certified

- Premium
- Marketing benefits

- Operational Efficiency
- Legal liability avoided costs

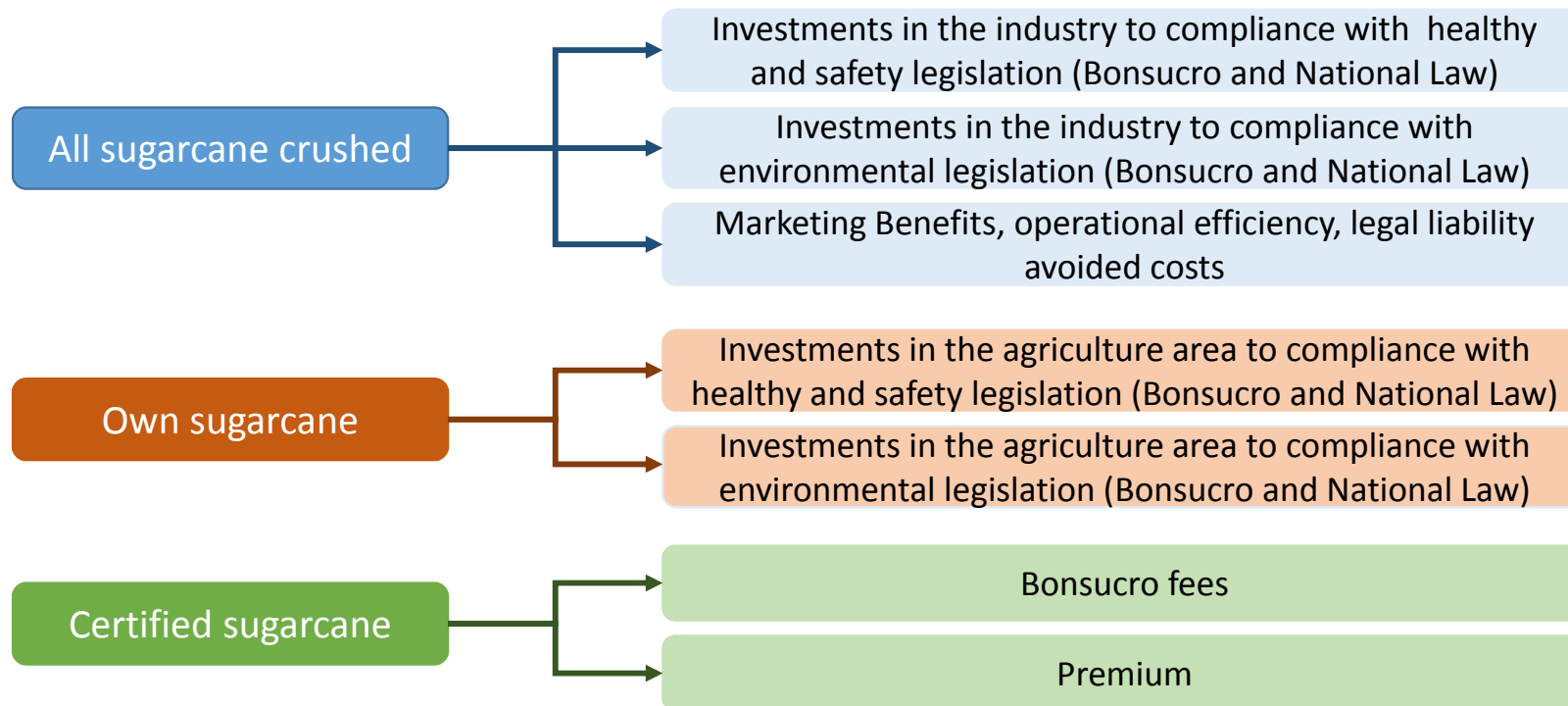
Benefits decreasing in order to achieve zero in $t=6$ ($V_i - (V_i/5)$), when start a new certification cycle

Results

Costs and benefits and Cash flow analysis

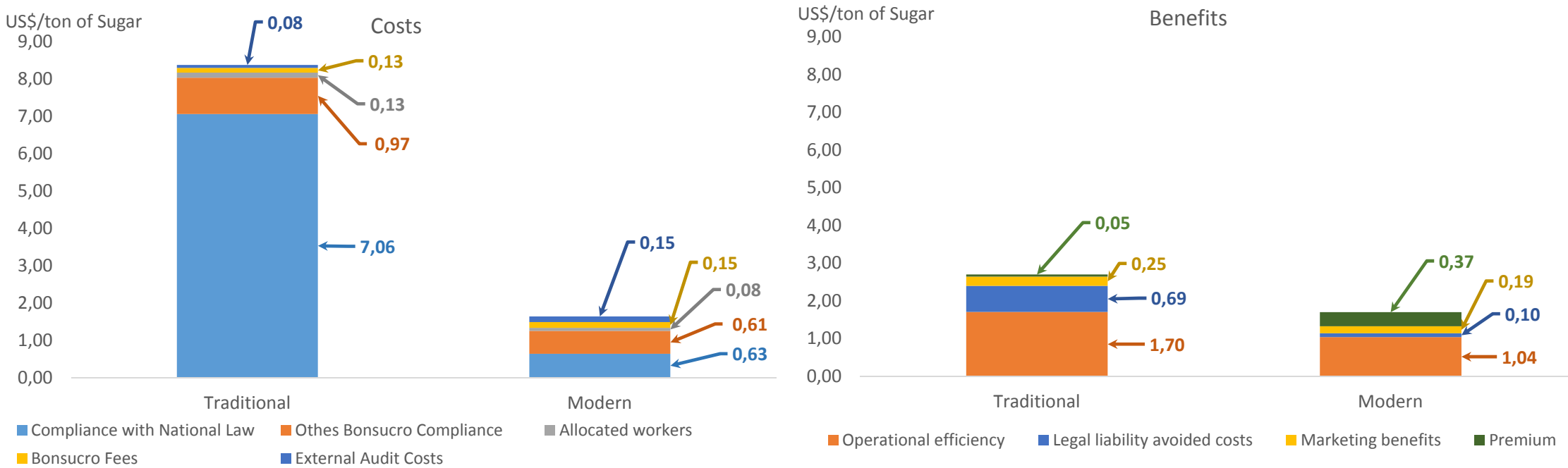
How the different costs and benefits components were considered in our analysis

- All information about investments and monetary benefits presented in the questionnaire by the mills are in total Brazilian reais invested or received
- The data and financial analysis presented in the next slides are in U\$ per ton of sugarcane and some of them, the central information, per ton of sugar
- The data were weighted according to:



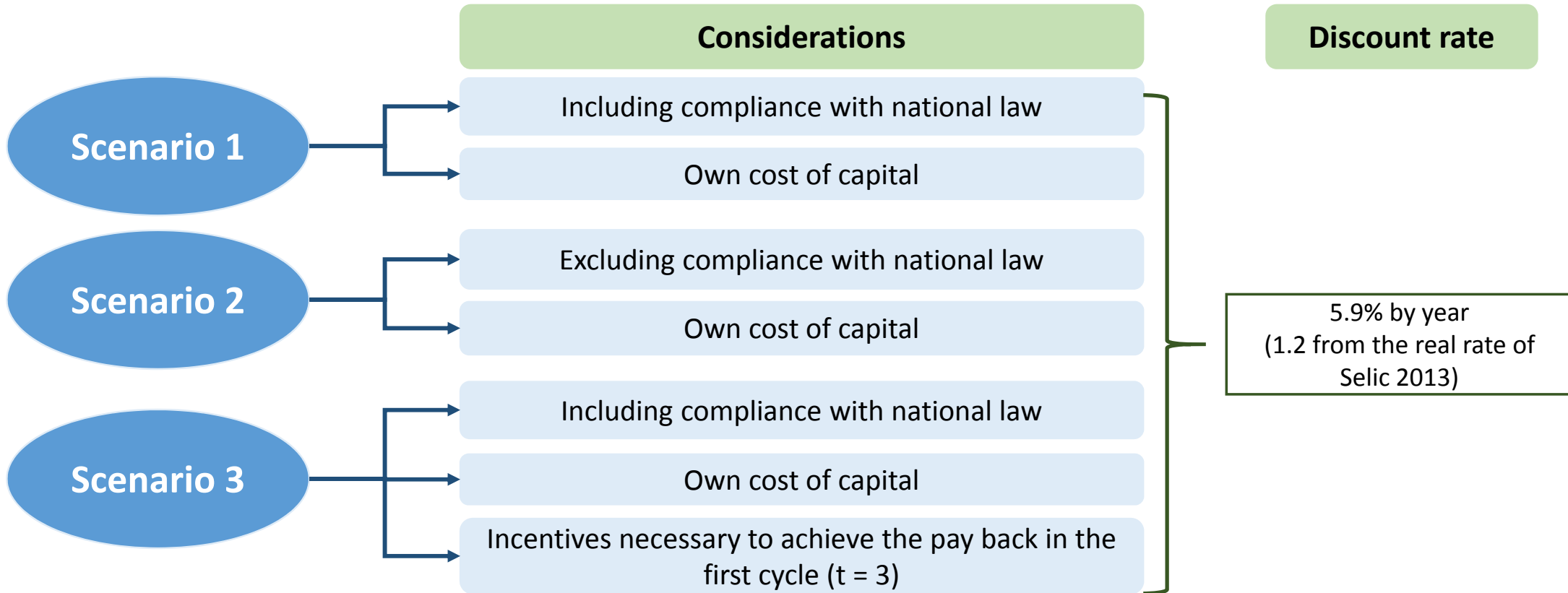
Initial Costs and Benefits to Certification (t=0)

Average costs to obtain certification and the benefits in the first year according to questionnaires data and grouping of mills by tons of sugar

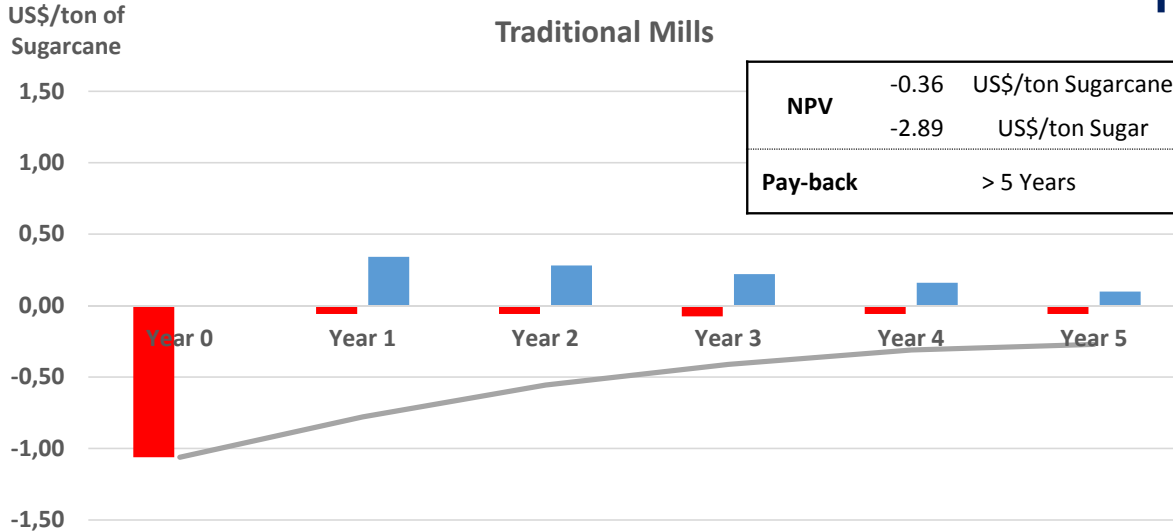


The total costs of Traditional mills (US\$ 8.37/ton of sugar) represents between 20% and 35% of sugar profitability (US\$ 24-42/ ton of sugar), considering the two last years.

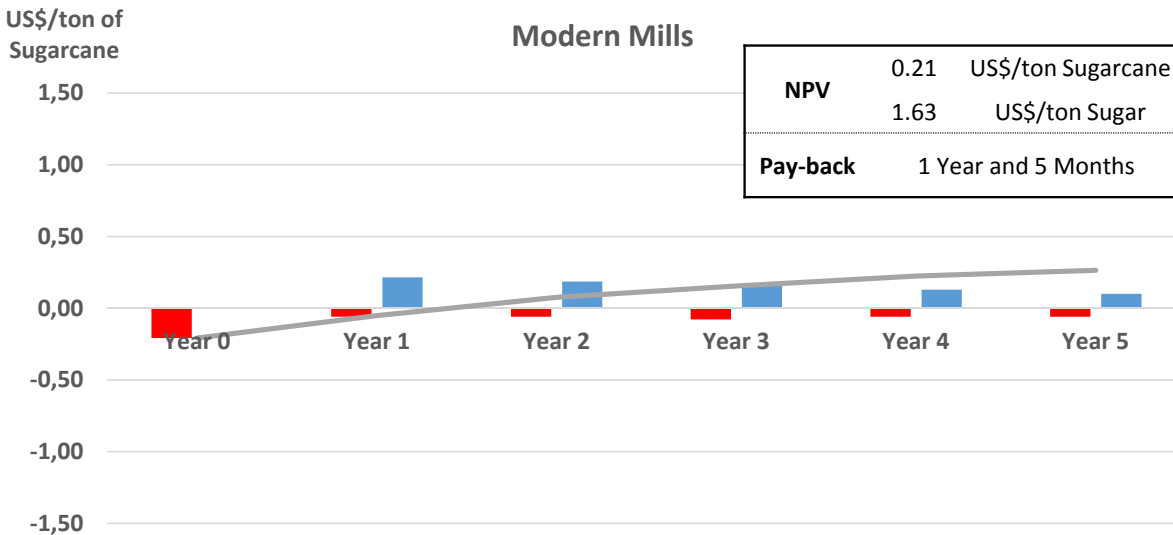
Cash flow scenarios



Cash Flow for Scenario 1 (Including compliance with national law and own cost of capital)

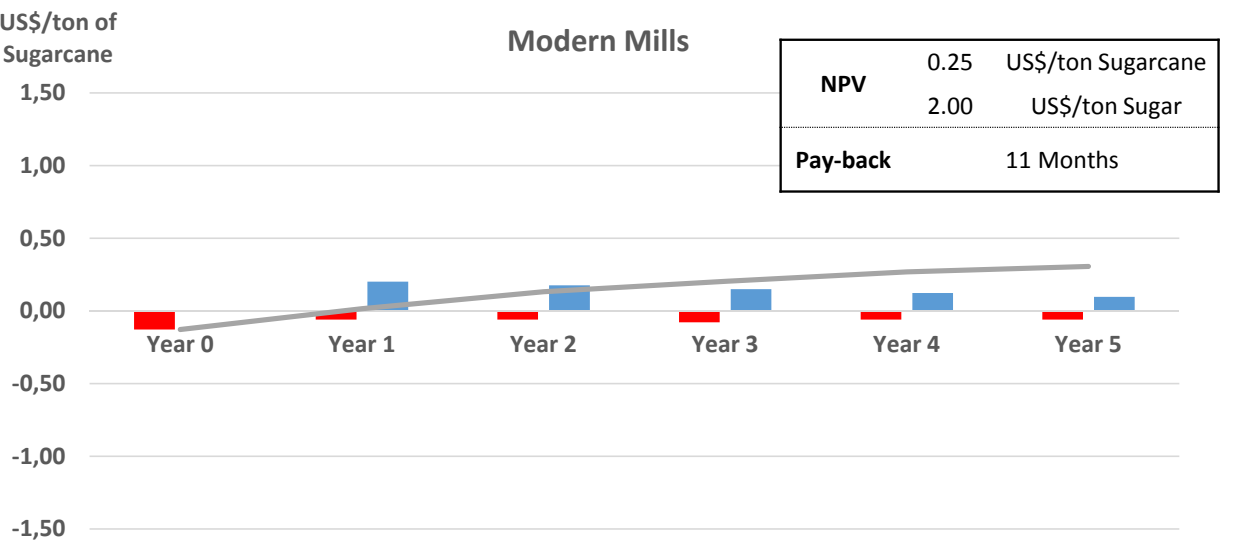
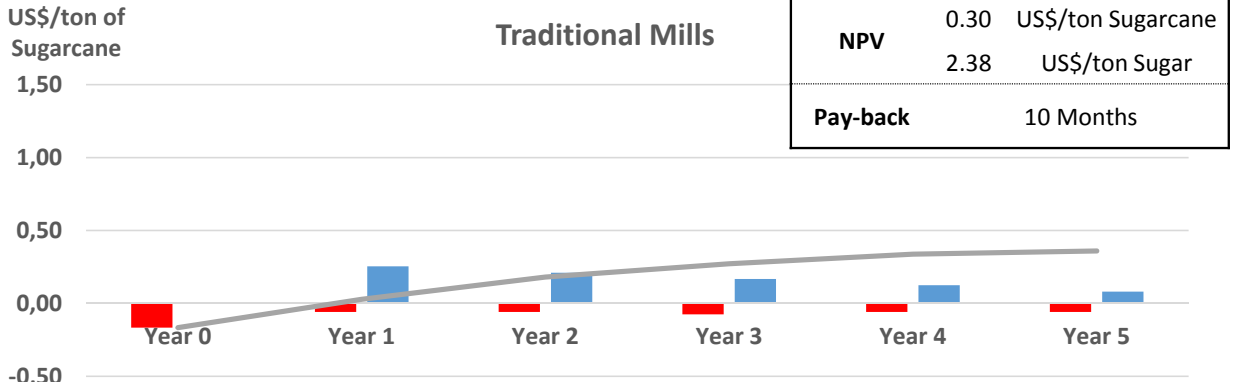


- Traditional mills presented a negative NPV and pay-back period longer than 5 years due to the high costs for legal compliance in the first year,



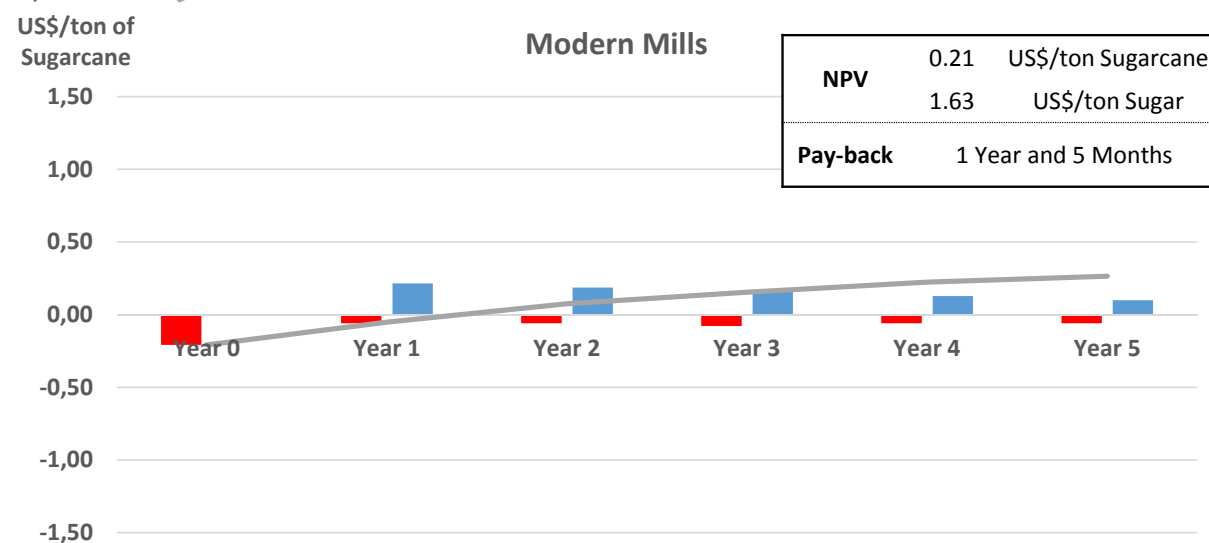
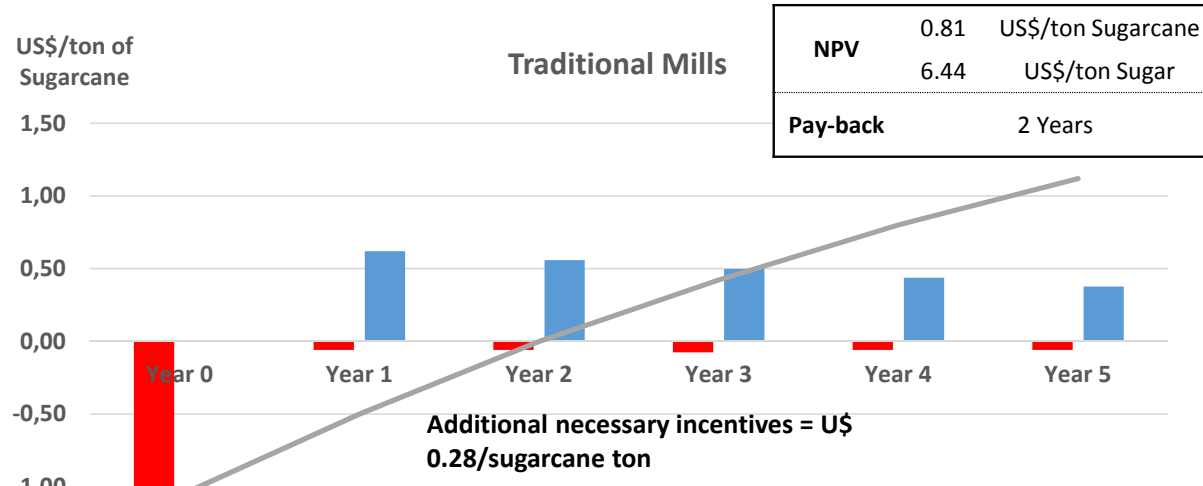
- Modern mills presented a short pay-back period (less than 2 years) and a positive NPV

Cash Flow for Scenario 2 (Excluding compliance with national law and own cost of capital)



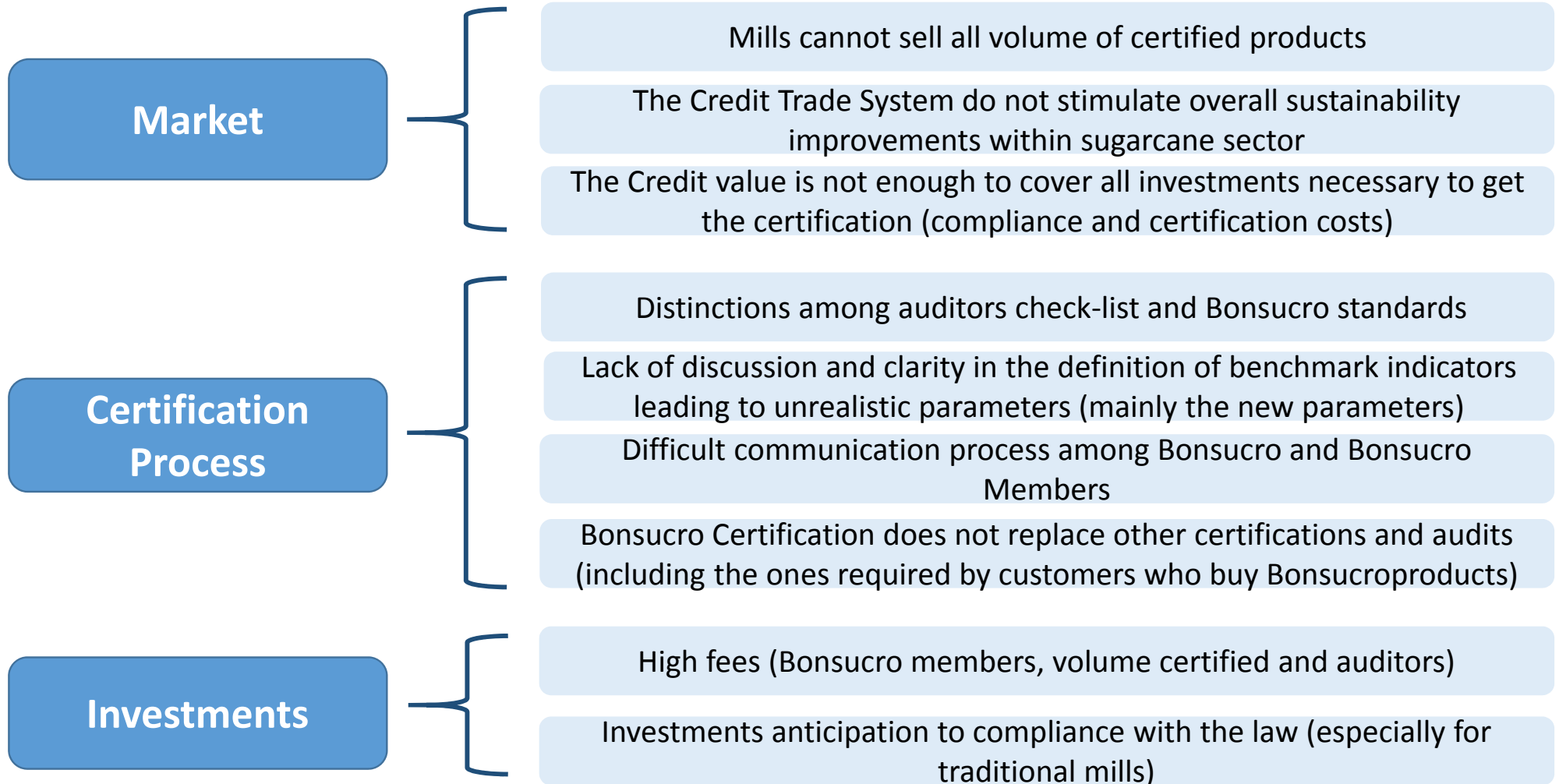
- Without considering law compliance, Traditional mills presented higher NPV than Modern mills

Cash Flow for Scenario 3 (Including compliance with national law, own cost of capital and using a “premium” for achieving pay-back in the first cycle)



- In order to achieve a pay-back in the first period of certification, this is, before the 3rd year, when the mill needs to recertification, the additional monetary incentives necessary to Traditional mills, considering the investments to compliance with national law, is US\$ 0.28/sugarcane ton
- The main objective of this analysis was simulating the additional financial incentives to have a positive pay-back in the first cycle (before the 3rd year). To do this it was simulated a shock in the premium, but the results would be the same if we have used another type of benefits.

Mills have indicated several challenges in Bonsucro certification process

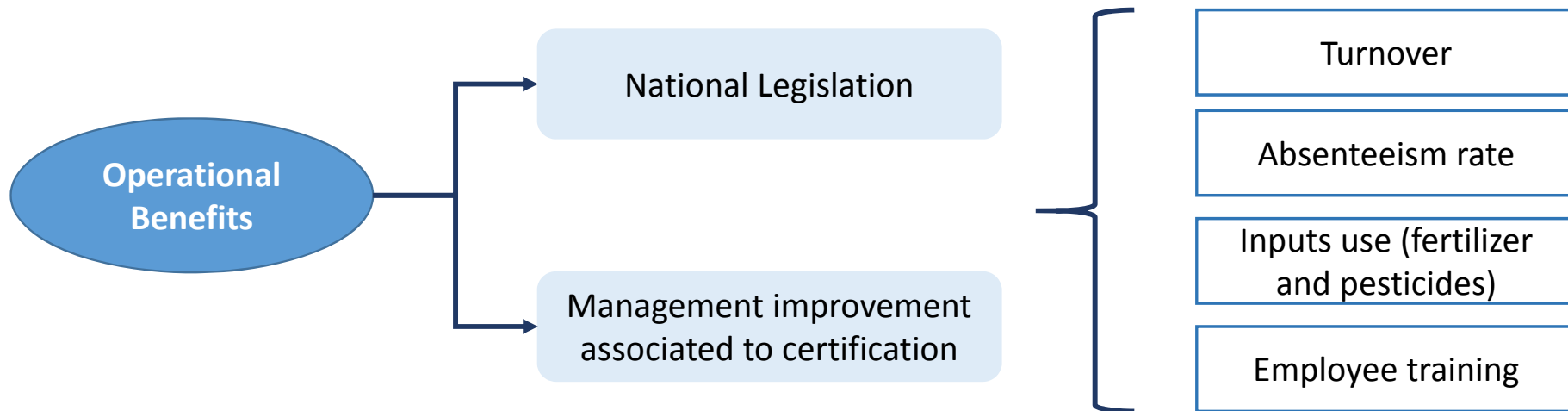


Conclusions and recommendations

Opportunities to increase the appeal of compliance and certification with Bonsucro

Additional analysis on the sensibility of operational efficiency is necessary to better understand its importance and impacts on conclusions

- Brazilian mills, traditional and moderns, has not been certifying any more (new areas or new mills)
- The most important benefit is operational efficiency and there is high level of uncertainty regarding these values
- Apart from the fact that the sample is very small compared to sector size, interviewed mills had to estimate these values, since most of them hadn't use this value within the management processes
- Considering that investments to compliance with National Law can generated some operational benefits, as reduction in work accident number, turnover rate reduction and others, it is expected that the operational benefits of Traditional and Modern mills were significant different, and that was not the case in our sample. This fact confirms the evidence that there are high uncertainty in this variable.



Key conclusions for the business case for Bonsucro from Brazilian mills perspective

	Traditional mills	Modern mills	Other (Brazilian) mills
Business case for reaching compliance	High costs for legal compliance prevent the business case	There is business case for compliance, if operational efficiency benefits are sufficient high	Mills may benefit a lot from operational efficiency
Business case for certification	Validating compliance does not bring significant cost and benefits to change the business case (if it exists)		Probably not significant, compared with other compliance costs
Opportunities to increase the appeal	Support for legal compliance		<ul style="list-style-type: none"> • Support for legal compliance • Engagement of the principles and benefits associated
	<ul style="list-style-type: none"> • A program to drive the legal compliance by mills, since it is the biggest barrier to the certification. • The operational benefits are the biggest incentive for the certification, but it is very difficult to measure them, so a deeply analysis about it would be necessary. Management tools may help the mills identify these benefits. • To increase certified products demand and therefore premium and other market benefits • Better elucidation of the certification process (criteria and validating) between Bonsucro and member mills 		



Thank you

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