

RAESA Group



Presentation RAESA Vinasse v2021



RAESA Group



RAESA (Spain)



- RAESA Argentina
- Raesa Brasil
- Raesa Chile
- Raesa CentroAmérica
- Raesa Perú
- Raesa Algerie
- Raesa Senegal

• Irriloc



• Europrysma



• Bodegas Resalte



• Intelesoft

• Incerrex



RAESA Group

## RAESA Group

### History

**RAESA** was founded as a result of the cumulated expertise of a Business Group with more than 50 years of experience in the field of agriculture and irrigation, with the purpose to satisfy the engineering and consultancy demands of the Group and its clients.

Due to its early establishment, the Group has been a pioneer in the introduction and installation of modern and diverse irrigation systems, such as drip and sprinkler, over the last few decades in both Spain and Southern Europe.

Upon its solid establishment in Spain and Europe, the Group has successfully expanded into Central and South America, which is a natural expansion for Spanish companies. Hundreds of thousands of agricultural and agro-industrial hectares have been developed over the past 30 year, as a result of the Group's presence on the continent. Now the same attention is being applied to Africa and Asia.

Since its founding, **RAESA** Group has maintained its philosophy that only performance driven technologies are suitable for in-field installations. **RAESA**'s mission is to use the Group's valuable know-how to assess and fulfill each client's specific needs. As a result of this thinking, the Group offers individual attention adapted to each client instead of designing generic corporate patterns. **RAESA** seeks out the most suitable technologies available and adapts them to best suit each individual client.

**RAESA** is backed by more than 500 specialized employees from all around the world. The Group's staff is mainly formed by personnel having daily contact with the agricultural field. Thanks to this hands-on-contact, **RAESA**'s expertise is constantly being updated with the latest international state-of-the-art irrigation techniques and agricultural practices.

Working in some of the world's most important agricultural areas, the Group has learned the importance of competitiveness in attaining proper agricultural development. **RAESA**'s goal is to achieve fast results for clients. In this sense, the use of a project document functions as a working tool for a project's correct implementation instead of seeing it as a final product. The Group eliminates all obsolete and non-competitive alternatives in its studies, as to save time and money through the designing phase. The result is a modern and innovative solution to face the agricultural-product market's future challenges.



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## Quality

- DIN and UNE standards.
- First irrigation Spanish company to get the ISO 9001 certification
- ISO 9001:2008 for aluminum profiles and irrigation equipment in Spain.
- IQNet certification.
- ISO 9001:2008 in Argentina.
- ISO 9001:2008 in Brazil.
- Complete traceability and logistic control using most advanced ERP on the market: SAP.



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## RAESA in Agriculture

- World leader in sprinkler irrigation.
- More than 40 years of experience.
- Own & patented technology.
- Selling in more than 110 countries worldwide.
- Full turn-key solutions in Agriculture.
- Huge markets to implement irrigation: Africa and Asia



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Sprinkler irrigation brand

Production capacity of up to 43,000 tonnes of aluminum per year.

World leader and well known for years of quality and reliability.

R+D to keep on improving.



RAESA Group



Elaboration of Etanol

Substitute of the benzine

- ✓ More economic.
- ✓ Sustainable solution.
- ✓ Reduction of oil import.
- ✓ Creation of employments.



Solution for vinasses



Elaboration of Ethanol

**PROBLEM**

To produce 1 liter of ethanol we generate 14 liters of vinasses,  
which is a problem for the sugar mill but a fertilizer for the soil.



Solution for vinasses





Solution for vinasse distribution

**Problems with the vinasse**



**It is a subproduct that contaminates the soils in high dosis.**



**Difficult to transport: corrosive.**



**High cost of collecting and handling.**



**Difficult logistics when it is distributed on the plots.**



Solution for vinasses



Solution for vinasse distribution

**Solution: AP pipes**

- ✓ Use of the vinasse as fertilizer: saving fertilizers (K)
- ✓ Easy to install/uninstall
- ✓ Special patented design: high pressures and low corrosion.
- ✓ Diameters up to 10": transport to many kms of distance.
- ✓ No soil contamination or environmental impact.

Solution for vinasses



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Hydraulic Coupling High Pressure AP



Patented Design

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Solution for vinasses



AP system pipes



Solution for vinasses



AP system pipes



Solution for vinasses



AP system pipes



Solution for vinasses



AP system pipes



Solution for vinasses



AP system pipes



Solution for vinasses





## Economic advantages

**-1 ton of sugar cane produces 90 liters of ethanol.**

**-1 liter of ethanol produces 14 liters of vinasse.**

**-So 1 ton of sugar cane produces 1.260 liters of vinasse.**

**Depending on the type of sugar mill we can get different quantities of  $K_2O$**

**-Sugar mills that make only ethanol, they produce between 3 to 4,5 kgs of  $K_2O$  per 1.000 liters of vinasse when making ethanol.**

**-Hybrid sugar mills that produce sugar and ethanol, they produce around 1,5 kgs of  $K_2O$  per 1.000 liters of vinasse when making ethanol.**

Solution for vinasses



## Economic advantages

- The vinasse has also small percentage of macro-nutrients: N and P, and micro-nutrients, Ca y Mg. The most interesting one in terms of economic impact is the K, due to its high content.
- Another important advantage of adding vinasse is that it accelerates the decomposition process of the straw leaves that remains in the soil.
- According to different studies, the annual amount of straw generated is 10-30 MT/Ha/year, with a very slow decomposition process in dry climates, causing problems not only due to the lack of organic components (40-100 kg N/Ha/year) but also due to all the working difficulties of having an excess of straw in the field.
- Vinasse has a low relationship C/N (80-100/1), which helps to increase the speed of straw decomposition, increasing the nutrients of the soil.

Solution for vinasses



## Economic advantages

**If we take an average of 2,5 kg of  $K_2O$  for each 1.000 liters of vinasse:**

**-We produce  $2,5 \text{ kg} \times 1,26 = 3,15 \text{ kg}$  of  $K_2O$  for each 1.000 kg of sugar cane.**

**If we do not distribute the vinasse, we must provide fertilizers to the soil and create big environmental problems.**

Solution for vinasses



## Economic advantages

**We must provide the potash as KCl.**

**-Price of the KCl is 450 USD/Ton (\*)**

**-1 kg of KCl equals to 0,64 kg of K<sub>2</sub>O**

**-So price of K<sub>2</sub>O is 450 USD/0,64= 703 USD/ton of K<sub>2</sub>O**

**-If we consider an average yield of 80 tons/ha (\*\*) of sugar cane.**

**-We must provide 3,15 kg K<sub>2</sub>O x 80 ton = 0,252 tons of K<sub>2</sub>O.**

**-The cost of this K<sub>2</sub>O is 0,252 ton x 703 USD/ton= 177,2 USD/Ha**

**So, we can save this amount in fertilizers !!**

**(\*) Estimated price of KCl for large volume purchases.**

**(\*\*) Yield of the sugar cane can change based on weather, soil and other factors.**

Solution for vinasses



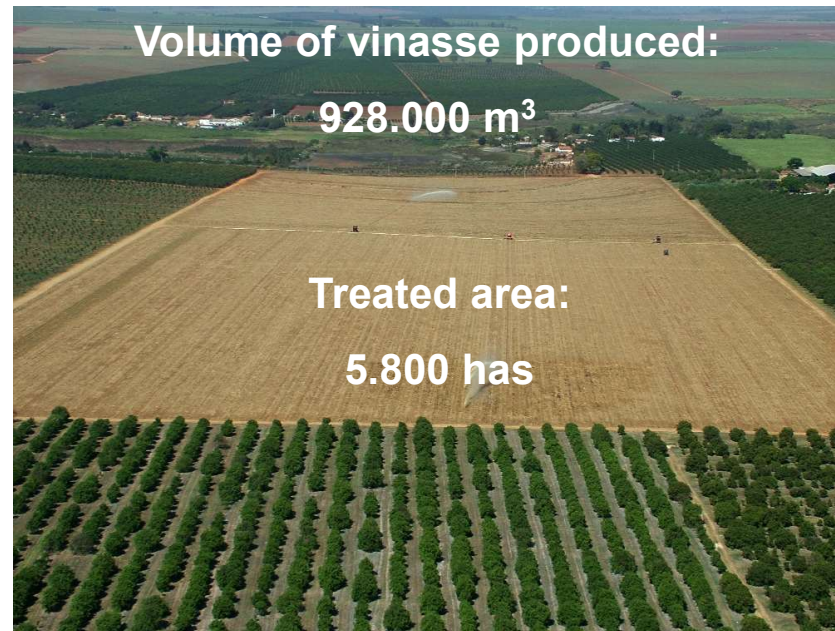
**Example of Project: Usina Sao Joao (Brazil)**



Solution for vinasses



**Example of Project: Usina Sao Joao**



Solution for vinasses



Example of Project: Usina Sao Joao



Solution for vinasses



Example of Project: Usina Sao Joao



**8 Kms de 8" AP pipe of RAESA**





**Example of Project: Usina Sao Joao**

**-Save of cost on fertilizers.**

**-According to some studies, the controlled distribution of vinasse increased the yields of sugar cane 16-20%.**

**-Reduce environmental impact.**



### Example of Project: Usina Sao Joao

**Before starting the milling process, the cane must be washed and this can be done with water or dry.**

**When water is used, the approximate consumption is as follows:**

**-1m<sup>3</sup> of vinasse requires 1.5 m<sup>3</sup> of water.**

**In most cases this water is mixed with the vinasse and used for fertigation.**

**This mixture contains a lot of solid particles (stones, soil, cane leaves, etc.), which makes it necessary to use high-flow sprinklers and large-diameter nozzles.**

**When the cane is washed dry, or the vinasse is separated from the washing water, to distribute the vinasse, we can use small flow sprinklers, achieving better distribution of the vinasse and lower energy consumption.**



RAESA = Irrigation solutions

Large experience in agriculture  
+  
Most advanced technology  
+  
High quality production systems  
+  
Owen engineering  
+  
High skilled staff  
+  
R+D  
=  
**Best solutions for agriculture**



Riego por aspersión



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