Ecuador: Valorising cacao pulp to improve farmers’ income

A research project funded by the Dutch Topsector Agri & Food, and the Topsector Horticulture & Starting Materials

15.12.2022
| 01 | Problem and solution |
| 02 | Results |
| 03 | Cost price |
| 04 | Design |
| 05 | Supply |
| 06 | Main conclusions |
| 07 | Next steps |
| 08 | Benefits |
PROBLEM

& SOLUTION

- Cacao is a fruit, but only the beans (20%) are being sold.
- 6 million farmers producing +/- 6 million tons of cacao beans. Small holder farmers, with a small piece of land. Farmers are poor, unsustainable business.
- The cacao pulp drips in the soil during fermentation.
- Pacha de Cacao is a purpose-led agrifood start up that makes beverages from the pulp.
- Our question: How can we scale up our supply operations in Ecuador, with more financial returns for farmers and a lower cost price for Pacha's supply chain?
- Consortium
- Quantitative research and experiments.
- Milestones: pod experiments, yield improvement experiment, technical design, farmer survey (90 farmers), economic modeling.
RESULTS

- Before extraction of the pulp the cacao beans/pulp must be inspected for defects.
- When the pulp is stored for 3 days at 5°C, the quality can be guaranteed if it can be stored for 3 days without effects on pH, Brix and flavor.
COST PRICE

- The amount of pulp that can be extracted from the pods is limited.
- However, there is great variability between different cacao genetics.
- The yield of the pulp collecting is the major parameter on the production costs.
SUPPLY

• Production: average 10,000 pods per hectare, max 20,000 pods per hectare.
• Average farmer has 1 to 4 hectares.
• Collection area
  ◦ One factory: needs pods from 600ha, if 60% of the pods can be acquired
  ◦ 4 semi-fixed locations: needs 150ha.
MAIN CONCLUSIONS

- The pulp has to be extracted directly from the pod.
- The pulp quality can be guaranteed for at least 3 days when stored at 5°C.
- For transport overseas the pulp has to be concentrated to create an ambient shelf stable product.
- The farmers are willing to sell their pods instead wet pulp
- Large scale production of cocoa pulp can be feasible
  - But not with a MPU that daily change his location, rather an SMPU (Semi Mobile Pressing Unit).
NEXT STEPS

- The cacao pulp extracting is used as one of the cases in EUproject CREA
  - Project to increase opportunities for sustainable products in the European market, generating income and employment in the Ecuadorian agri-food sector.
  - CREA is led by Rikolto and implemented in consortium by COSPE, ANFAB, KU Leuven and Espol.
  - Espol (Guayaquil, Ecuador) will study the improving of the yield and the concentration of the pulp.
- Discussion potential partnership with cacao trading company in the NL.
- Pilot testing of the SMPU.
BENEFITS

- Increased knowledge and a concrete plan about logistics and alternative production to pulp processing.
- A draft design for the semi-mobile pressing units.
- Economic model showing the positive impact.
- Increased network.
Questions?

Bert Dijkink
bert.dijkink@wur.nl
&
Marika van Santvoort
marika@pachadecacao.com