Case study 2: 100% chicken manure organic fertilizer

- Applying composting, drying, sterilization and pelletizing production process leading to a finished product profile with storability, shelf life of more than 1 year.

- Dry matter 80-90%, Organic matter 50-65%, Total Nitrogen (N) +-4.2%, Organic Nitrogen 85 - 90% , Phosphor pentoxide(P_2O_5) 3% ,Potash Oxide (K_2O) 3%, Calcium Oxide (CaO) 9%, Magnesium oxide (MgO) 1%, C/N 9% , CEC <20 (Agriculture.Institute, 2023; Biocompig, 2026)

- Antibiotic residues in manure (NABC & RVO, 2020) - This can be mitigated with controlled temperature composting

Key findings:
Organic fertilizer

- FOANI has a competitive advantage for vertical integration of the supply chain
- FOANI has annual access to 100,000-150,000 tons of raw material
- Market security is critical from the first year of commercialization with a potential to feed the cocoa region in Ghana as well as plantations in CIV.
- The financial structure should combine debt financing (approximately 50% at 11%, with equity and/or grant funding.
- Reliable energy infrastructure is essential to support the pelletizing line, given its installed capacity exceeding 100 kW.
- The supply chain must ensure consistent access to approximately 500 tons of raw material per month.

Organic Fertilizer from Chicken Manure - SWOT Analysis

	Helpful	Harmful
Internal	**Strengths** • High stable nutrient and organic matter profile • Validated technology (validated in the EU & Research) • Efficiency in transport & application (when pelletized) • Farmer appreciation and use • Circular economy model	**Weaknesses** • High CAPEX and inadequate knowledge • Wet manure transportation challenges (bulkiness, cost) • Application challenges (when not composted and pelletized) • Lack of quality testing and analysis infrastructure • Lack of product standardisation and labelling
External	**Opportunities** • Local production due to rising costs of chemical fertilizers and supply chain disruption • Inclusion into government fertilizer subsidy • Mitigation of climate risk in crop production and soil degradation • Hygienic standards of production and pelletization • Improved food security • Regional export potential	**Threats** • Lack of government regulation • Price competitiveness of chemical fertilizers • Biosecurity pathogen risk threatens sector credibility • Market trust undermined without standardisation

Case study 3: Compost

- Organic plant material grinded and further broken down by BSFL; frass is harvested and composted nutrient rich chicken manure and additional nutrients is integrated into the final product with the possibilities of pelletizing technology to achieve further efficiency.

- Composted plant-based material integrated with biochar and poultry manure.

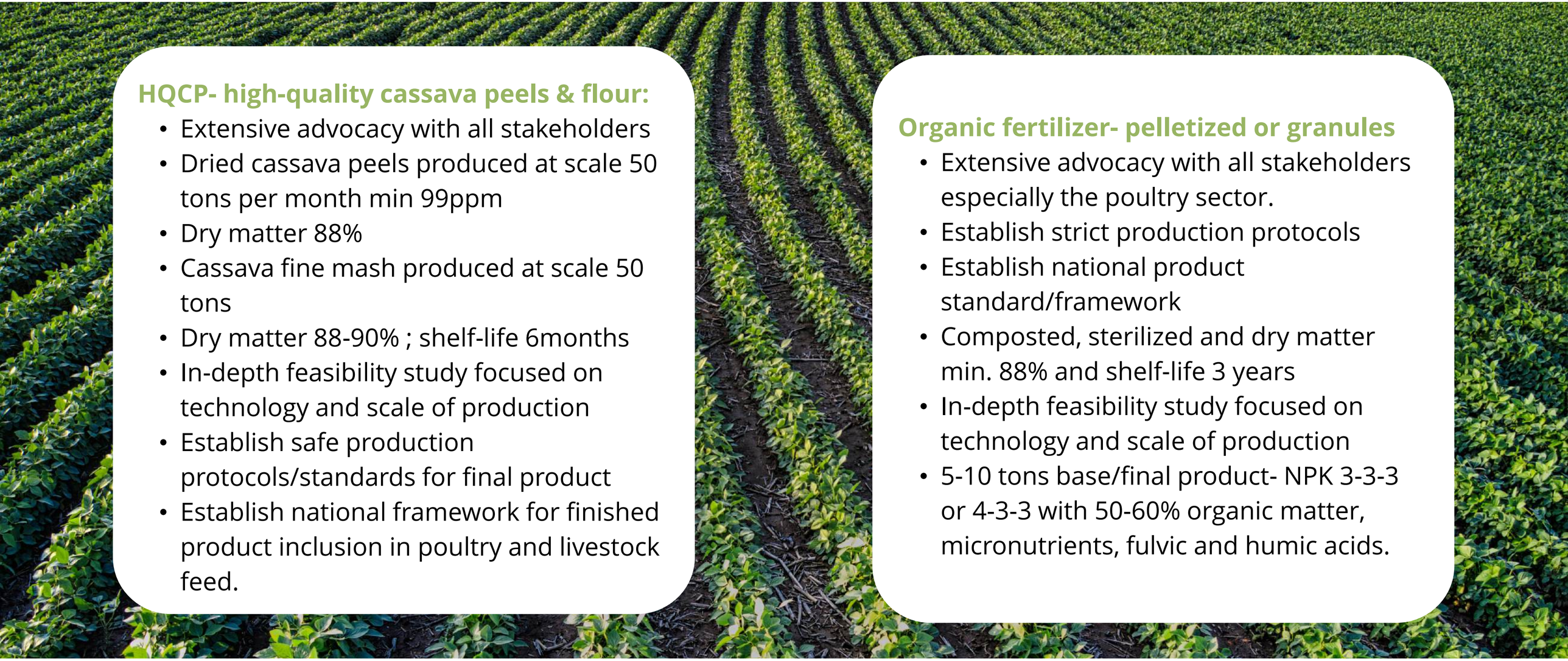
- Low nutrient, mid-high organic matter for soil amendment.

Key findings:

Compost

- Frass constitutes the dominant revenue stream in both models (semi- industrial and cooperative), accounting for approximately 68% of total revenues, compared to 32% generated by dried larvae.
- Frass is the primary economic driver of these production systems- should be treated as the primary economic driver in investment and strategic decisions.
- Prioritize the semi-industrial model for the pilot phase: frass break-even threshold (+26%) is achievable in the short term, and the associated economies of scale justify the higher upfront investment.
- Position frass as the core commercial product of the pilot: initiate immediately the processes for nutrient analysis (NPK composition), certification, and packaging prior to the start of production.
- Avoid commercializing fresh larvae during the initial phase: their very short shelf life introduces logistical and quality risks
- Formalize substrate supply agreements before committing to infrastructure investments: no financial model is viable without a guaranteed, reliable supply at predictable cost.

Roadmap for Implementation



HQCP- high-quality cassava peels & flour:

- Extensive advocacy with all stakeholders
- Dried cassava peels produced at scale 50 tons per month min 99ppm
- Dry matter 88%
- Cassava fine mash produced at scale 50 tons
- Dry matter 88-90% ; shelf-life 6months
- In-depth feasibility study focused on technology and scale of production
- Establish safe production protocols/standards for final product
- Establish national framework for finished product inclusion in poultry and livestock feed.

Organic fertilizer- pelletized or granules

- Extensive advocacy with all stakeholders especially the poultry sector.
- Establish strict production protocols
- Establish national product standard/framework
- Composted, sterilized and dry matter min. 88% and shelf-life 3 years
- In-depth feasibility study focused on technology and scale of production
- 5-10 tons base/final product- NPK 3-3-3 or 4-3-3 with 50-60% organic matter, micronutrients, fulvic and humic acids.

Follow up conversations

POLICY

- Feed, circular economy and biodiversity
- Reducing the competition of food and feed
- Economic potential through the development of HQCP supply chain

PRIVATE SECTOR

- A chicken genetics company wanting to expand nutrition/feed alternative trials on poultry feed for a new chicken line in the region.
- A local player- manure testing and cassava peel mapping and machinery acquisition (cassava biofortification exploration)
- A feed producer desire to expand their cassava peel supply base in CIV

Regional focus

Benin

Senegal

Ghana

Nigeria

Call to action for companies

• Dutch knowledge and technology – **Dorset Green Machines and Circuworld** is suited to the needs and solutions in Cote D'Ivoire poultry feed and waste management challenges.

• Opportunities for collaboration between knowledge institutions and technology providers in the Netherlands to add more value to the poultry sector and close the circle.


Thank
you!

References

Agriculture.Institute. (2023, November 27). Utilizing Poultry Manure: From Waste to Valuable Resource - Agriculture Notes by Agriculture.Institute. Agriculture Institute. https://agriculture.institute/poultry-housing-and-management/utilizing-poultry-manure-valuable-resource/

Biocompig. (2026). Organic granular fertilizer supplier | Biocompig B.V. Biocompig.fr. https://www.biocompig.fr/en/

CGIAR. (2022). Solution : Cassava Peels for Animal Feed Production. Propas.iita.org. https://propas.iita.org/en/solutions/cassava-peels-for-animal-feed-production/57/details/

Ehl, D. (2026, May 8). Fertilizer crisis: Africa's options amid the Hormuz blockade. Dw.com; Deutsche Welle. https://www.dw.com/en/fertilizer-shortages-what-are-africas-options-during-the-hormuz-crisis/a-77094073

Hamissou, I. G. M., Appiah, K. E. K., Sylvie, K. A. T., Ousmaila, S. M., Casimir, B. Y., & Benjamin, Y. kouassi. (2023). Valorization of cassava peelings into biochar: Physical and chemical characterizations of biochar prepared for agricultural purposes. Scientific African, 20, e01737. https://doi.org/10.1016/j.sciaf.2023.e01737

International Livestock Research Institute. (2025). Scaling Delivery Strategy for Cassava Peels as an Animal Feed in Nigeria.

RVO. (2025). Valorisation circulaire de la filière avicole en Côte d'Ivoire: Défis et opportunités. 1–38.

RTI. (2026, May 9). Made In Africa du 07 mai 2026 : immersion dans l'univers des dérivés du manioc. YouTube. https://www.youtube.com/watch?v=PUgoMh1iO84

NABC, & RVO. (2020). Poultry Sector Study Cote d'Ivoire. https://nabc.nl/wp-content/uploads/2020/06/Final-Report-CDI-Poultry-NABC_14_11_2019.pdf

OEC. (2024). Corn in Cote d'Ivoire Trade | The Observatory of Economic Complexity. The Observatory of Economic Complexity. https://oec.world/en/profile/bilateral-product/corn/reporter/civ