

Fish feeding demo trials to strengthen aquaculture in Benin

Single Spark – NGN - AgriProFocus – WUR
SMP-2018



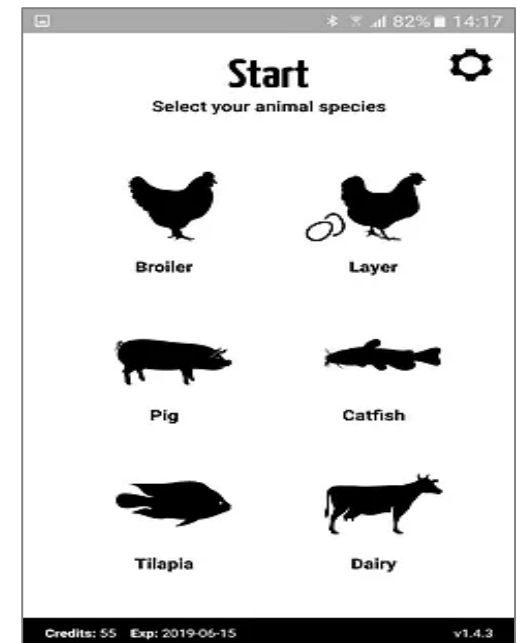
Context of Fish Feed Project in Benin

- <35% of fish demand met by local fishing and aquaculture.
- FAO, 2013: 407 mt Nile tilapia & 260 mt African catfish.
- *JICA fish farming* and *HUNGER* projects: >1,000 fish farmers.
- Most farmers use floating pellets, but prices high & ?-quality.
 - Import of high-end feed from NL, Brazil, Israel, Egypt.
 - Import of lower quality feed from Nigeria or Ghana.
- Key issues:
 - high cost ?-quality of feed;
 - quality of fingerlings.



■ Single-Spark Feed Calculator

- ⇒ increased profits of livestock farmers,
- ⇒ test also for fish.



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FEED IMPACT

Feed has a big impact on the profitability of a fish farmer



70% of production **cost** is feed



Feed **quality** is crucial for a profitable production



CHALLENGES FISH FEED BENIN

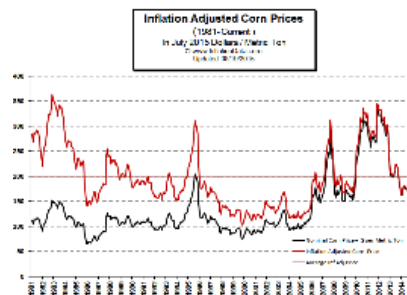


COMMERCIAL FEED:

- ✓ Price is high also due to manufacturing;
- ✓ Farmers can't use their own crop (residues).

=> SELF MIXING:

- ✓ Lack of knowledge about feed & ingredients;
- ✓ Lack of knowledge on need of animals (fish);
- ✓ Static recipes despite seasonal price fluctuations.



Specific objectives for the collaboration

- Build coalition of business partners around the trials;
- Introduce Feed Calculator app to potential clients;
- Organise demonstration trials;
- Introduce edible insects in fish feed (*NGN*) – not realised;
- Analyse & share the trial's results;
- Contribute to a PPS for further sector development.



Activities:

- Add Tilapia module to FeedCalculator;
- Organised on-farm demonstration trials:
 - Commercial ⇔ Feed-calculator feed;
 - Using Tilapia fingerling from the same batch.
- Trained 13 farmers (incl. 2 women):
 - Using Feed Calculator;
 - Making feed and feeding fish (timing, volume, equipment);
 - Record keeping (cost calculations, analysis).
- Monitoring July-December by:
 - Local thesis student and supervisors;
 - School of Aquaculture, Nat. Univ. Agriculture (UNA), Bénin.

FEEDCALCULATOR APP

Easy-to-use smartphone application for small and medium-sized farmers and feed mills to optimize feed in 3 steps

1

Select your animal specie & feed type

Broilers, Layers, Pig & Catfish

2

Fill in the current prices of the available ingredients

Maize, Sorghum, Barley, Soybeancake

3

Press “CALCULATE” and get your optimized recipe!

The Feedcalculator will calculate a 100% nutritious recipe for the lowest possible price

OUTPUT: 100% nutritious recipe for the least cost



USERS OF THE APP APP

Officially launched in December 2017 (after 3 years development with Dutch feedexperts and software developers)

>100

Daily new downloads



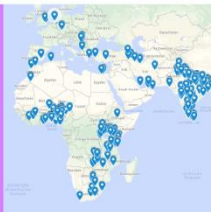
>25.000

Downloads worldwide



30+

Countries



FB advertisements

facebook Ads

Integrate in groups
(as a private or business)

JOIN OUR GROUP ON
Facebook



Other options:



Google play

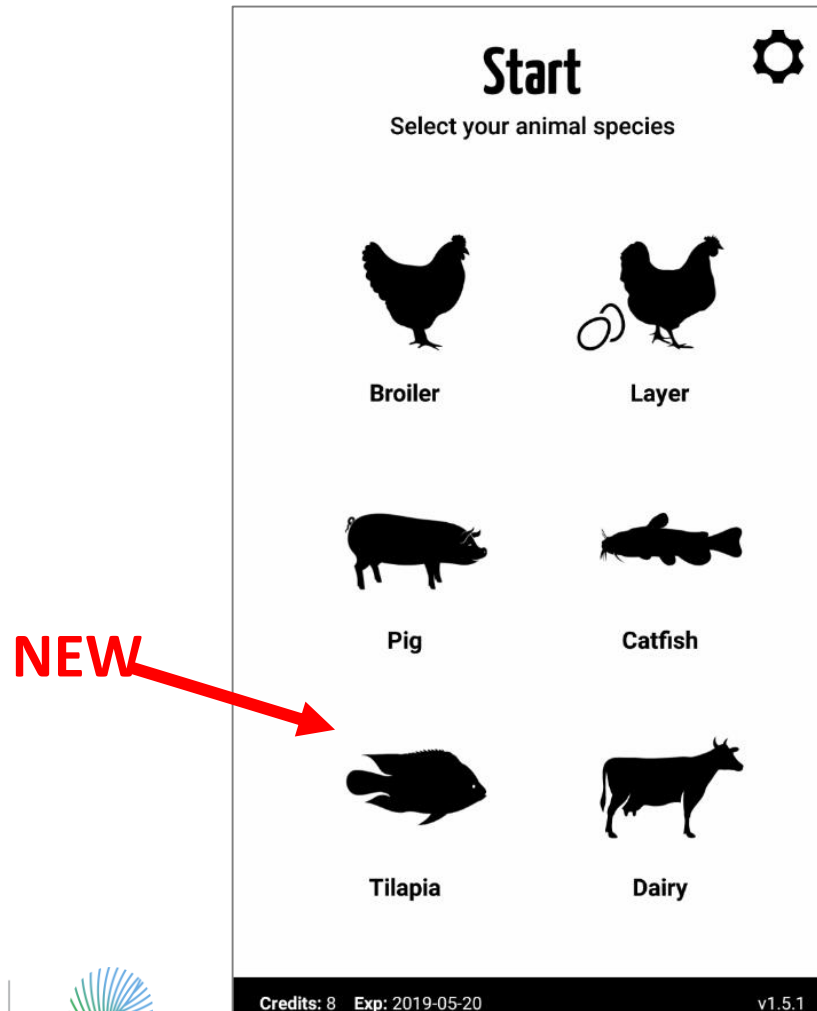


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100years
1918 — 2018

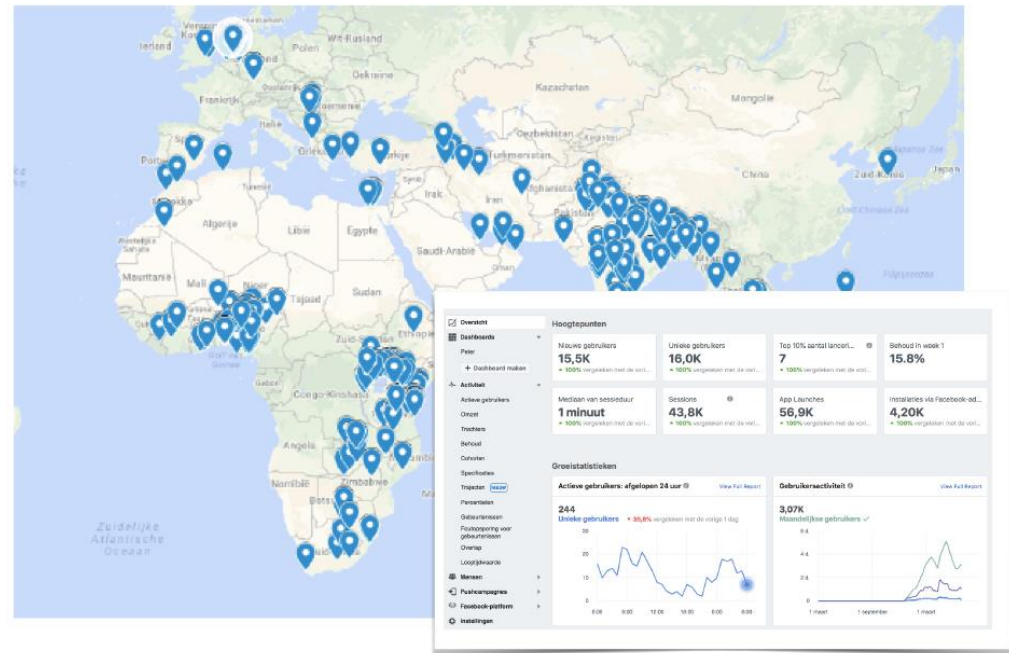
TILAPIA FISH MODULE ADDED



RECEIVE BIG DATA FROM YOUR END USERS!


The feed calculator records information about your end-users:

- Composition per used recipe
- Price end-users pay for your products
- Where are your products used
- Price of ingredients
- Size and farm type






Comparative Trial:


- Seven farmers with 2 ponds of 250m² or 500m²;
- Stocked on 7 July with 250/500 fingerling of 25 gr;
- Due to flooding two farmers lost their stock after some weeks;
- Harvest before Christmas;
- Then farmers told about predation by birds:
 - Requires nets or
 - higher stocking rates.
- Other constraints:
 - Overfeeding through unknown mortality;
 - Mineral premix for fish not available in Benin;
 - Indirect communication with student;
 - Involvement of & control by supervisors low.

Votre recette 



Type : Aliments de DÉMARRAGE
 (8 - 70 gram)
 EM 3500 kcal/kg, PB 39%
 Prix : 396.79 / kg
 Date : 2018-06-21

|  Ingrédient |  Poids (kg) |  Prix (XOF) |
|--|--|--|
| Huile de palme | 8.5 | 7,244 |
| Son de maïs, haute qualité | 17.5 | 2,538 |
| Son de riz | 9.3 | 838 |
| Cassave / Manioc / tapioca | 50 | 30,000 |
| Son de blé | 10.7 | 1,603 |
| Farines de poisson | 102 | 35,711 |
| Toureteaux de graines de soja | 50 | 20,500 |
| Tourteau de graines de coton | 1.2 | 239 |
| Sel | 0.50 | 150 |
| Saché prémélange 0,10% | 0.25 | 375 |
| TOTAL | 250 Poids (kg) | 99,198 Prix (XOF) |

Ajuster les kilogrammes en fonction de vos besoins



250 KG
= +/- 19 jours d'alimentation pour votre 10000 tilapia

Preliminary Results

Based on:

- Average weight of 10% after 5 month.
- Observed mortality => estimated survival.
- Price for harvest weight <300 gr (1,200 Fcfa).

| Type of feed | | Industrial | Home-made |
|--------------------------|--------------------------|------------|-----------|
| Average weight (kg/fish) | | 316 | 279 |
| Total Weight | (kg /500m ²) | 125 | 111 |
| Total Weight | (kg /ha) | 2.5 | 2.2 |
| Total cost | (€ /500m ²) | 133 | 115 |
| Gross margin | (€ /500m ²) | 955 | 981 |
| | (€ /ha) | 19,100 | 19,600 |

Next steps

- Feedback session on 23 January in Benin with:
 - ✓ Farmers;
 - ✓ Researchers & scientists;
 - ✓ Policymakers.

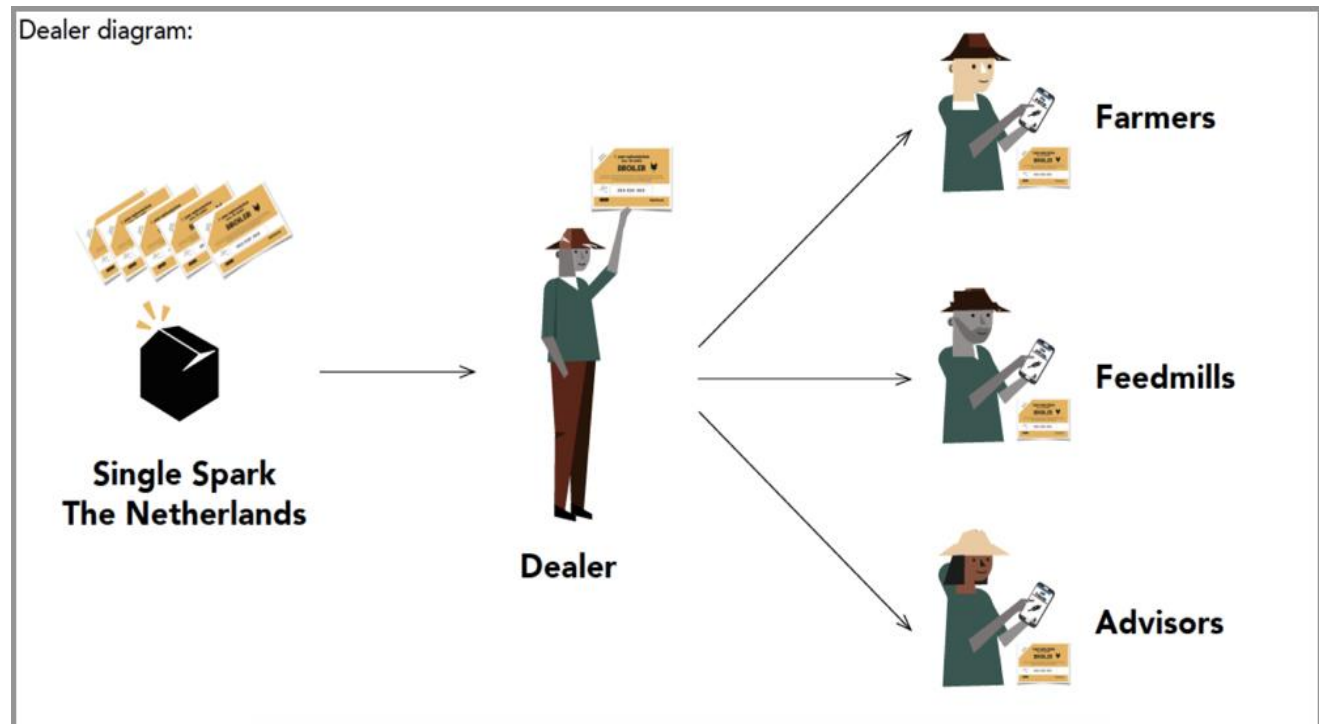
With support from NL Embassy and AFI.

- Keep an open eye for funding opportunities.

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Scaling opportunities

- Collaboration with WorldFish in Bangladesh and Indonesia.
- Trainer/dealer network for feeding in Benin and similar countries
- Collaborate with (local) research institutes and universities to:
 - ✓ Add ingredients to feed database (local crops, insects etc.)
 - ✓ Use the Feed-Calculator in education programs.



Nos sincères remerciements aux:

- Fermiers
- AgriproFocus Benin
- AgriproFocus NL, Wim Goris
- Single SPARK, Peter Meijer.
- UNA's School of Aquaculture,
- NL Embassy Benin programme on youth entrepreneurship.
- The Hunger Project.

