



3A feed Worry-free system

Daojun Li

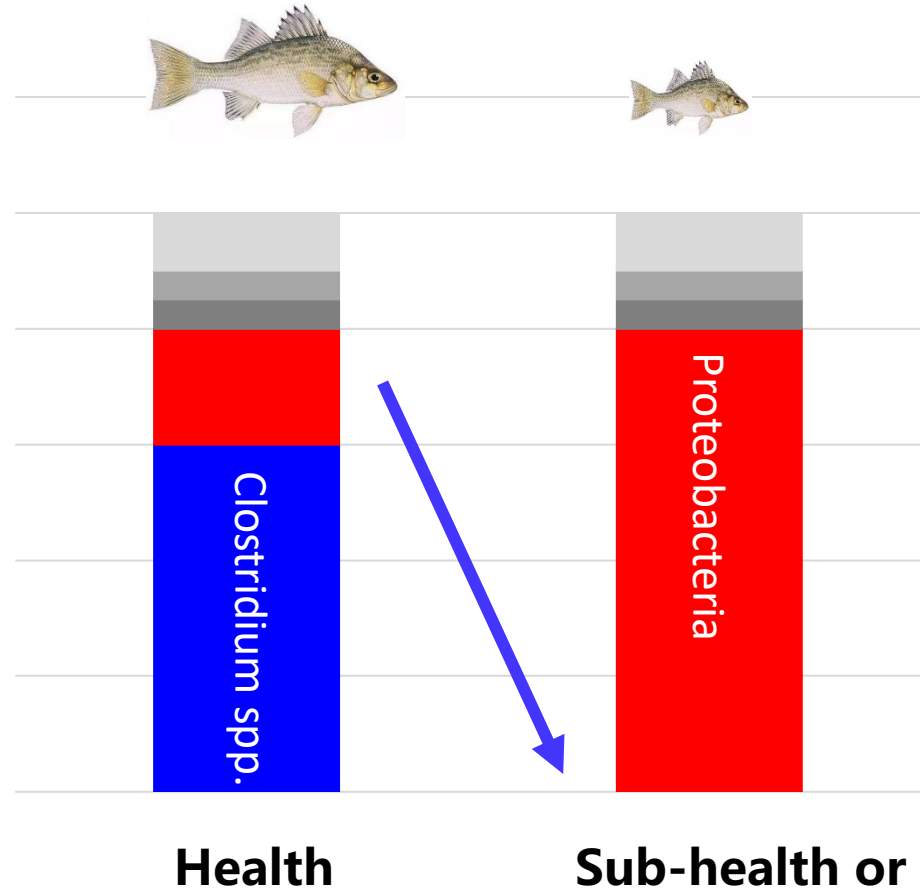
**Beijing Sino-Norway Joint Aquatic Science and Technology co.,
LTD**

Company Profile



Beijing Sino-Norway Joint Aquatic Science and Technology co., LTD focuses on aquaculture industry, based on the research of aquatic animal digestive tract microorganisms, developed 3 series of more than 10 kinds of commodities, to assist feed enterprises to build 3A feeds worry-free system drive two wheels, to enhance the technical strength and core competitiveness of feed enterprises !

Theoretical Foundations



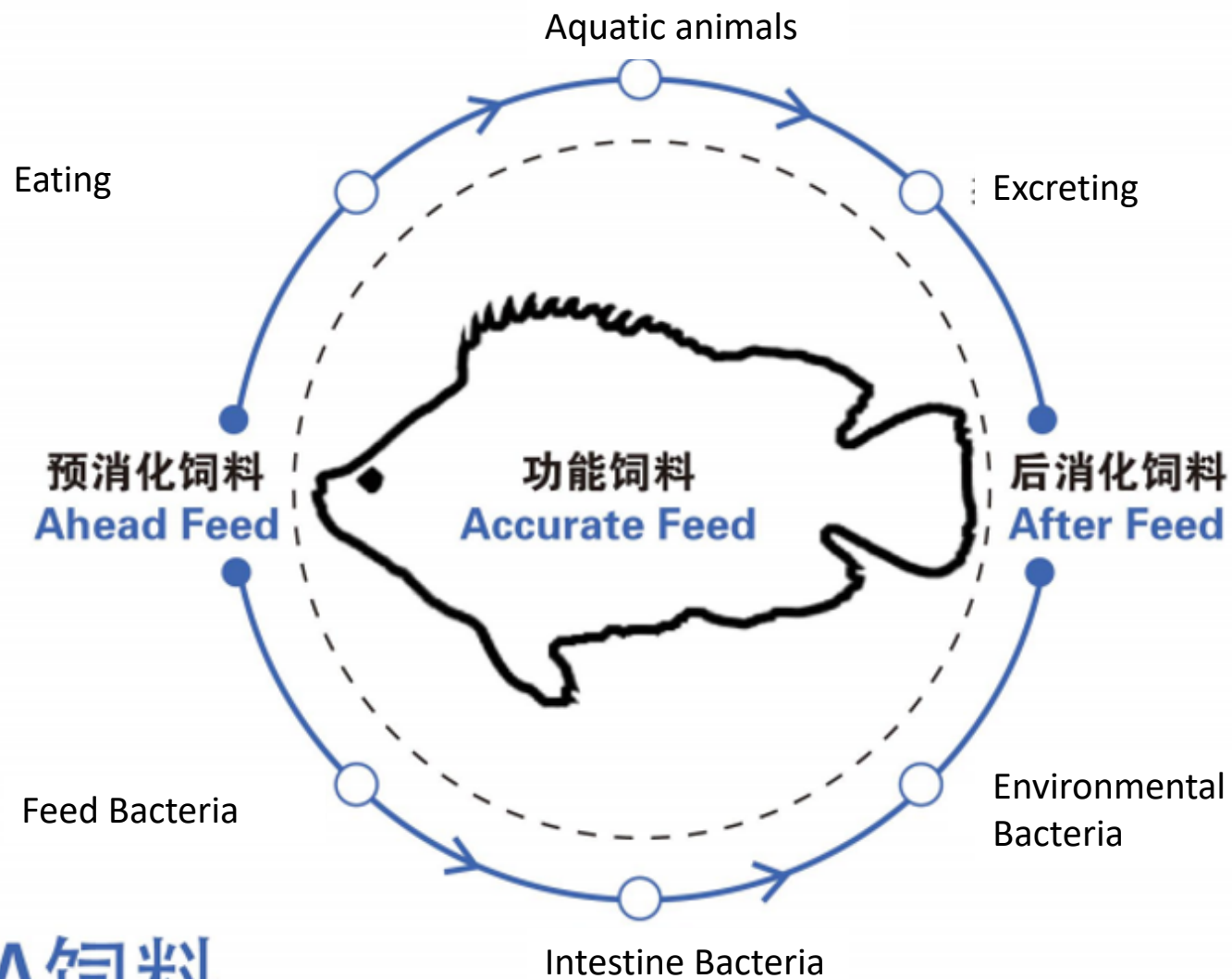
Reviews in Aquaculture, 2018

Intestinal flora homeostasis characteristics:

Proteobacteria↓ / Clostridium spp ↑

(High protein diets or carnivorous)

Application Form



3A饲料

A1:预消化饲料Ahead Feed; A2:功能性饲料Accurate Feed; A3:后消化饲料After Feed

Functional feed - conventional feed upgrade

**Maintenance of intestinal
flora homeostasis**

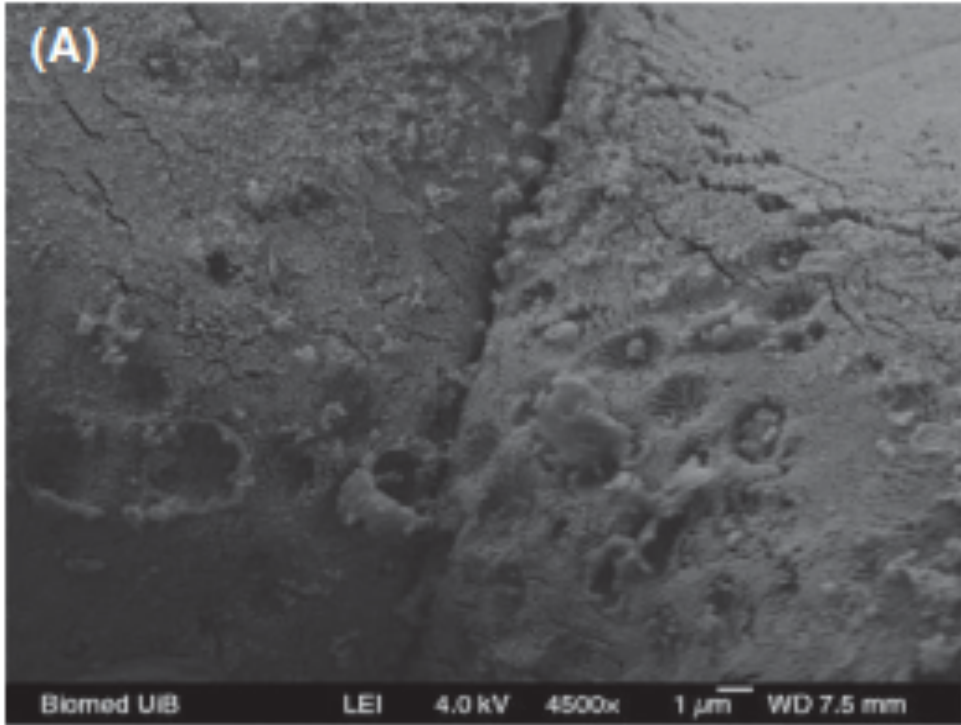
**Repair of the
intestinal barrier**

Transfer of liver fat

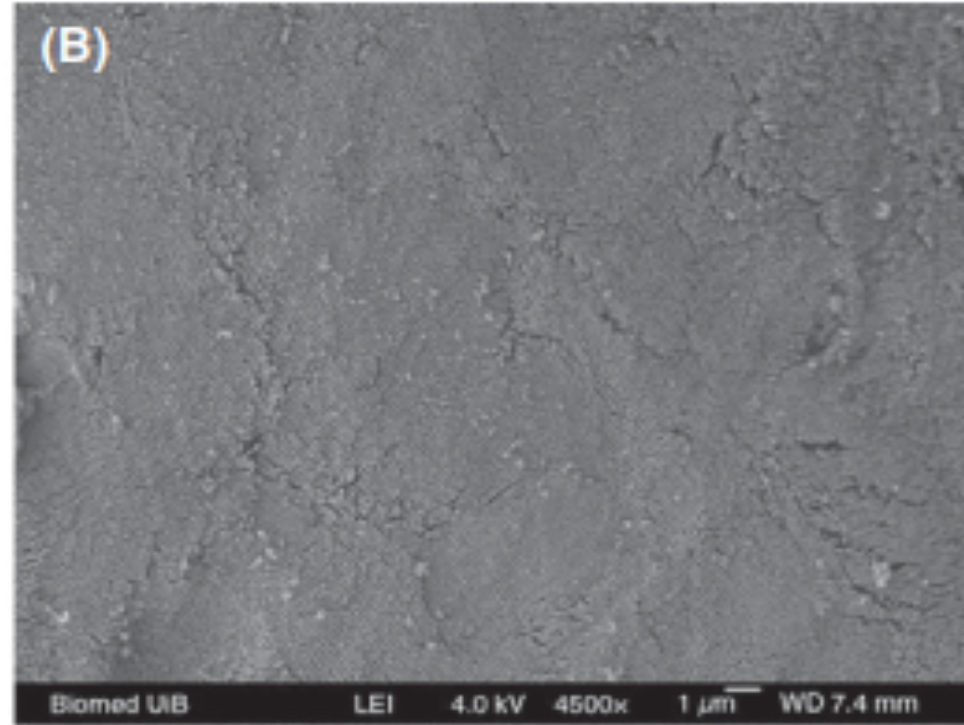
**Promote healthy growth
and reduce coefficients**



Functional feed-repairing the intestinal barrier



Control

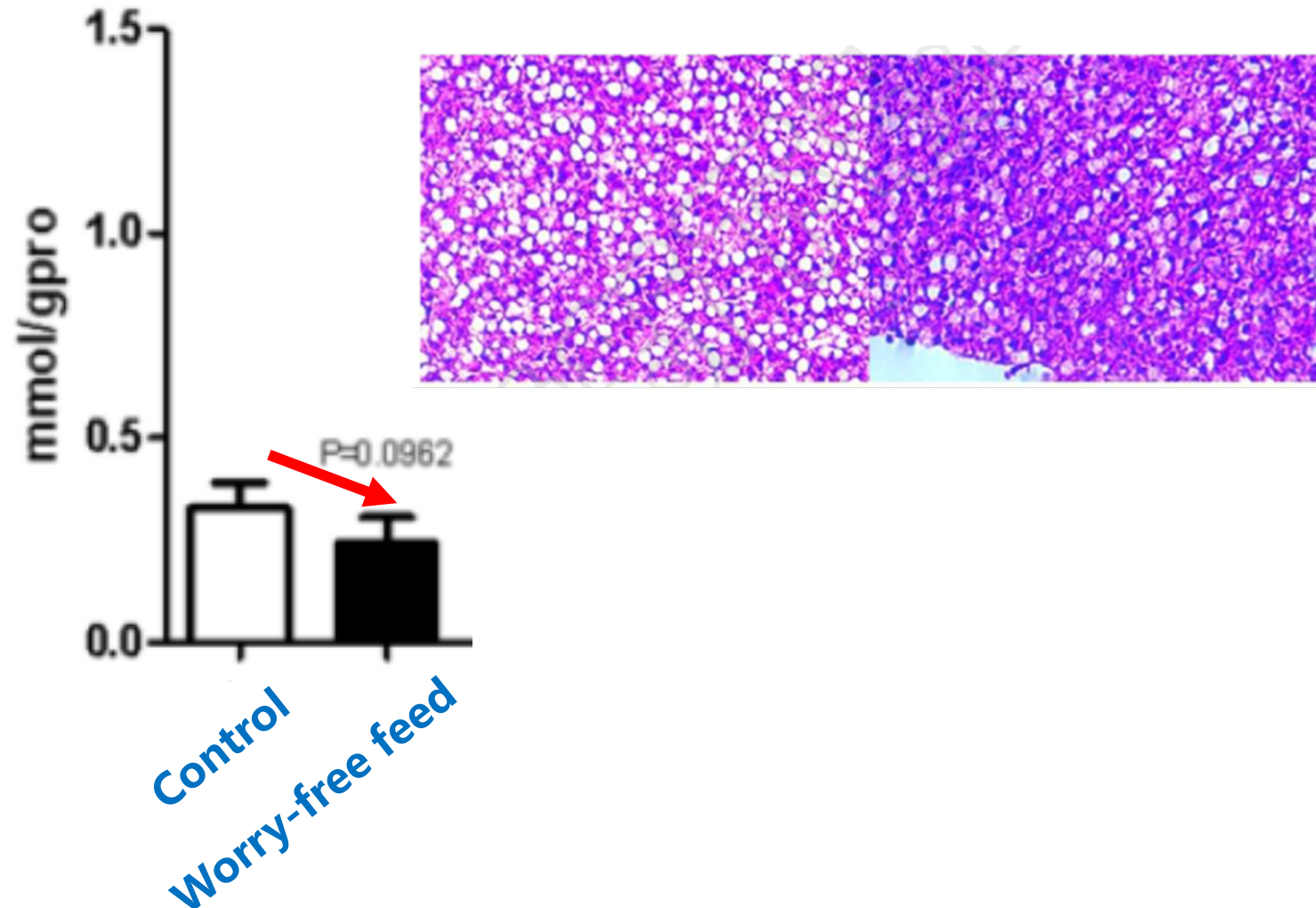


Worry-free functional feed

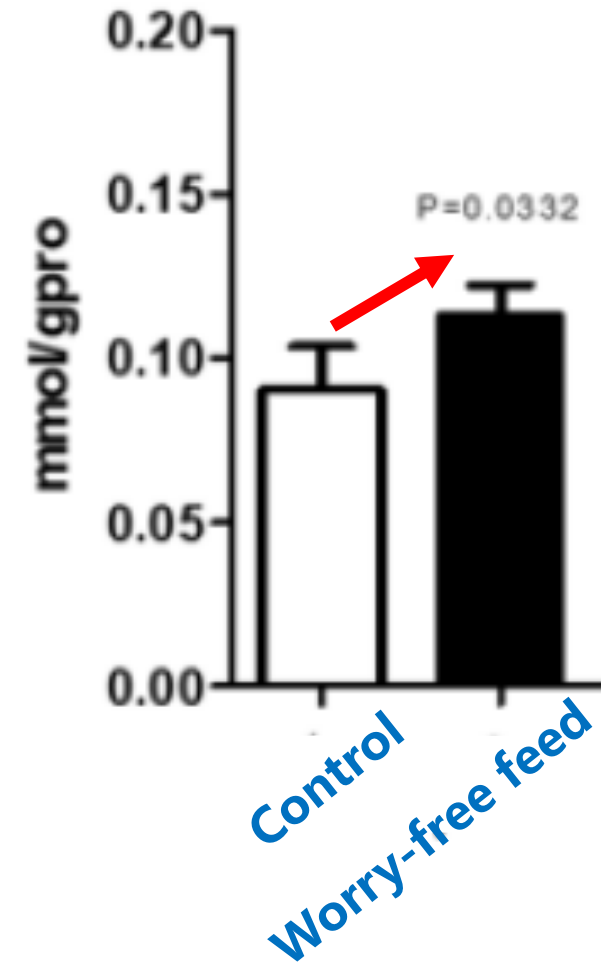
Stimulates mucus secretion from cupular cells and enhances the denseness of mucosal epithelial cells
Anaerobic environment inhibits the reproduction of harmful bacteria

Functional Feed-High AMP to Liver Lipids

Liver fat content



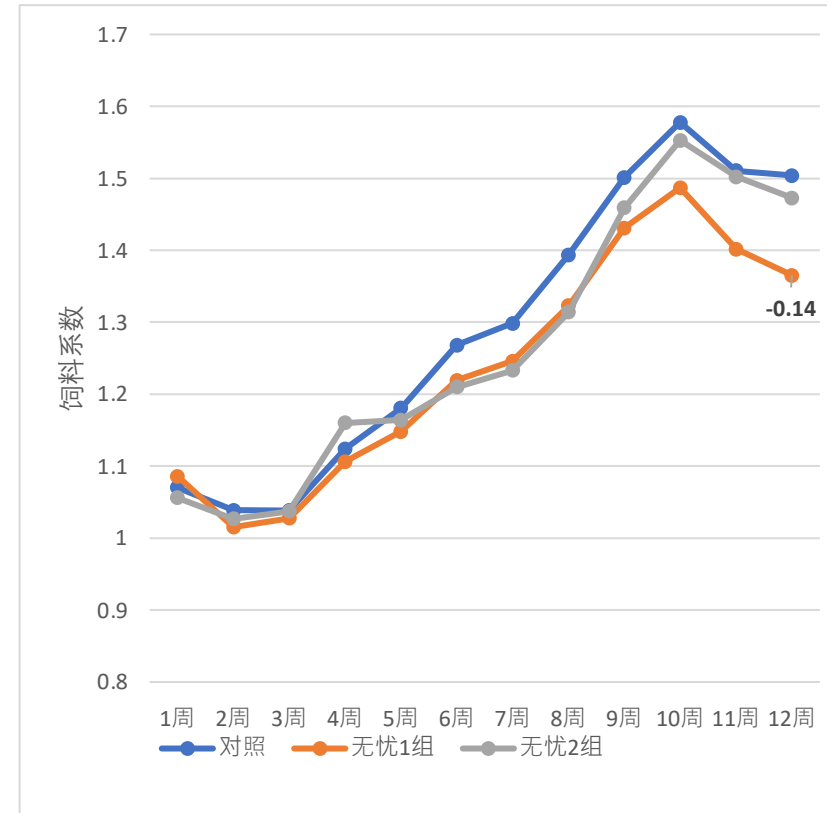
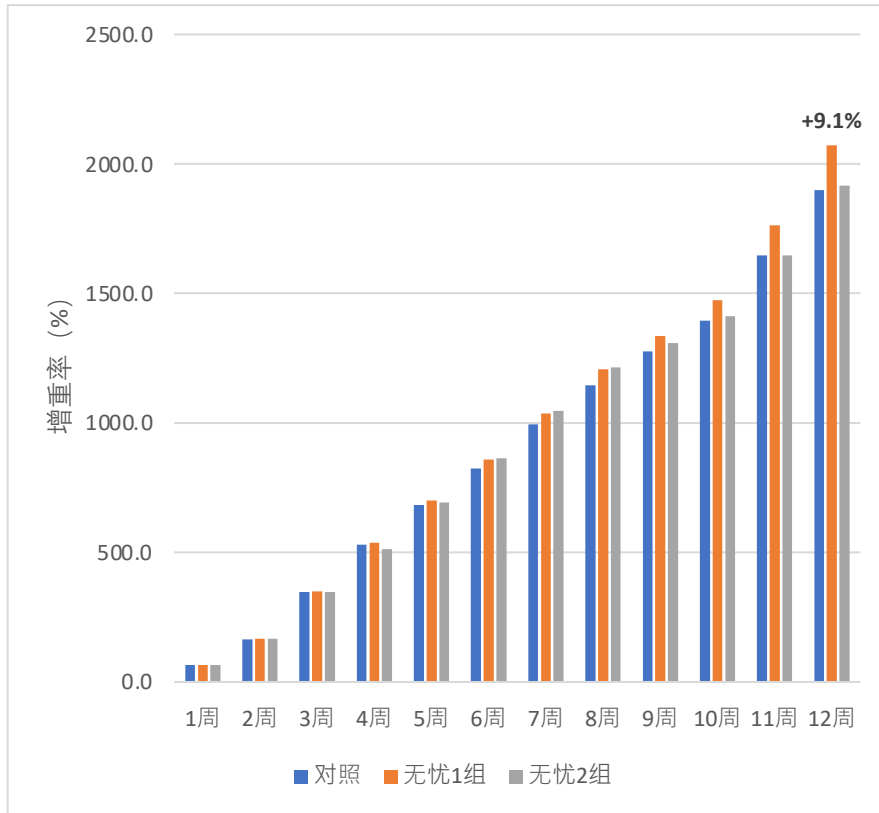
Muscle fat content



Worry-free functional feed to transfer liver fat to muscle deposits!

Functional Feeds - Growth Promotion

Tilapia indoor recirculating water culture system, no natural bait supplementation, 100% survival rate



Tilapia improved weight gain by 9.1% and reduced feed coefficient by 0.14 at 12 weeks
The 2% fishmeal replacement was carried out in the No.2 Worry-free feed group and weight gain and coefficient were not affected

Pre-digested feeds - Feeding with quality and efficiency

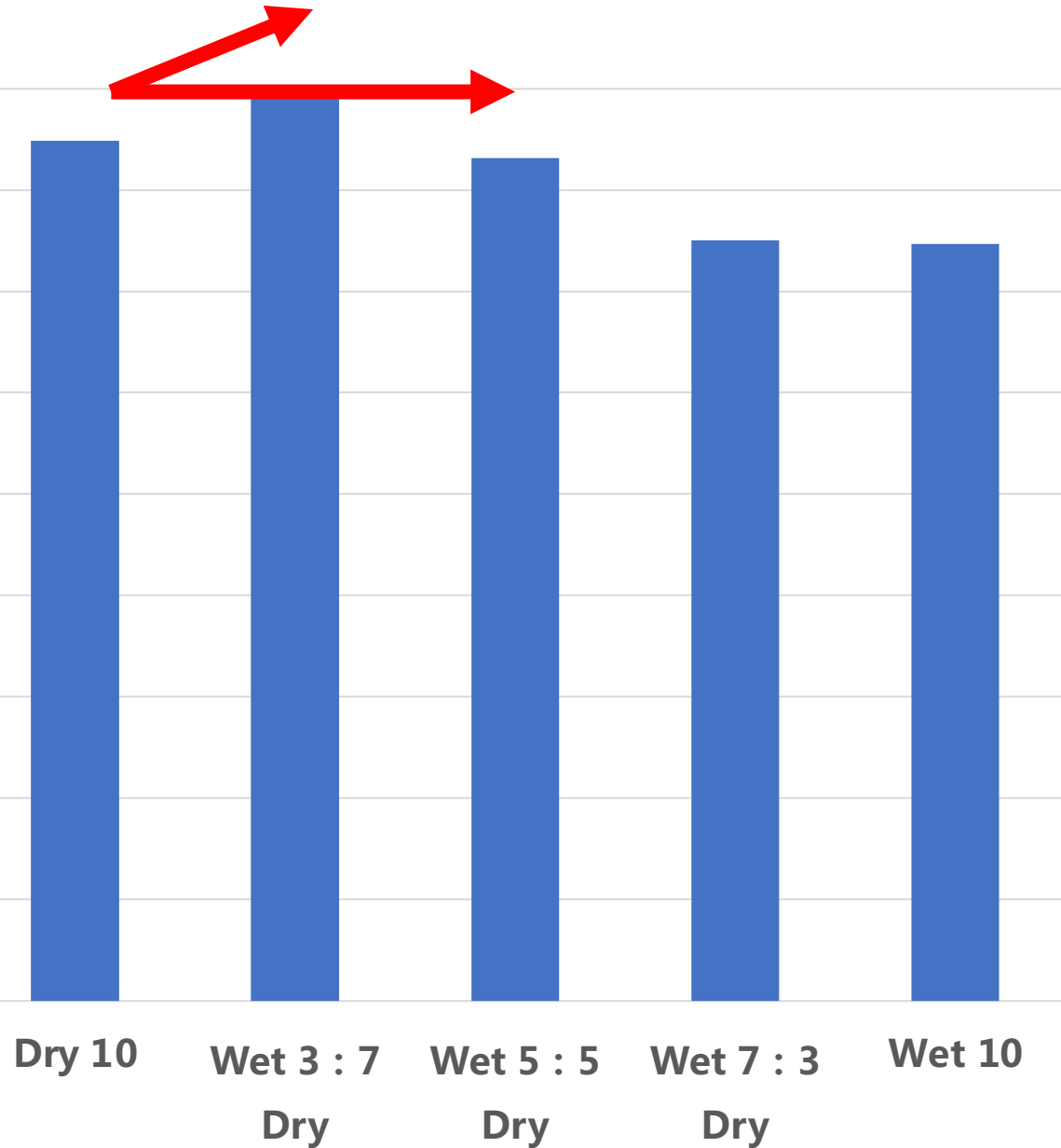
Carp

Product	Functional feed A2 (dry feed)	Pre-digested feed A1 (wet feed)
Soybean meal 46	150.0	400.0
-	-	-
-	-	-
-	-	-
Fishmeal	50	-
Chicken meal	100	-
Pork meal	100	-
Worry-free Companion B	-	-
Soybean Oil	-	-
Others	-	-
Water		450.0
SUM	1000	1450
CP%	30.5	30.5
EE%	10.45	0.58
COST(RMB/ton)	3933.5	3479.0

↓454.5RMB/ton

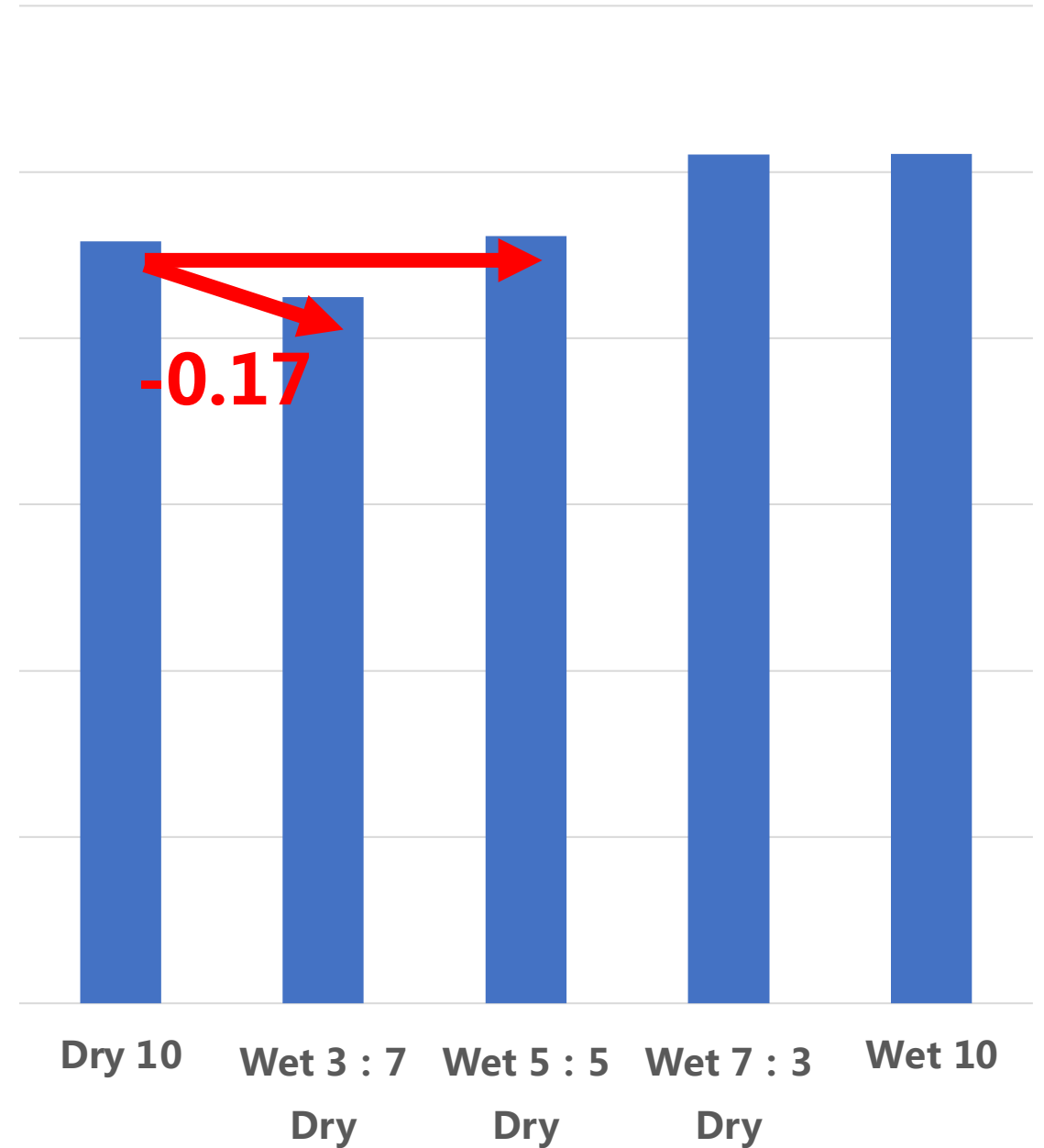
Weight Gain%

+5.9%

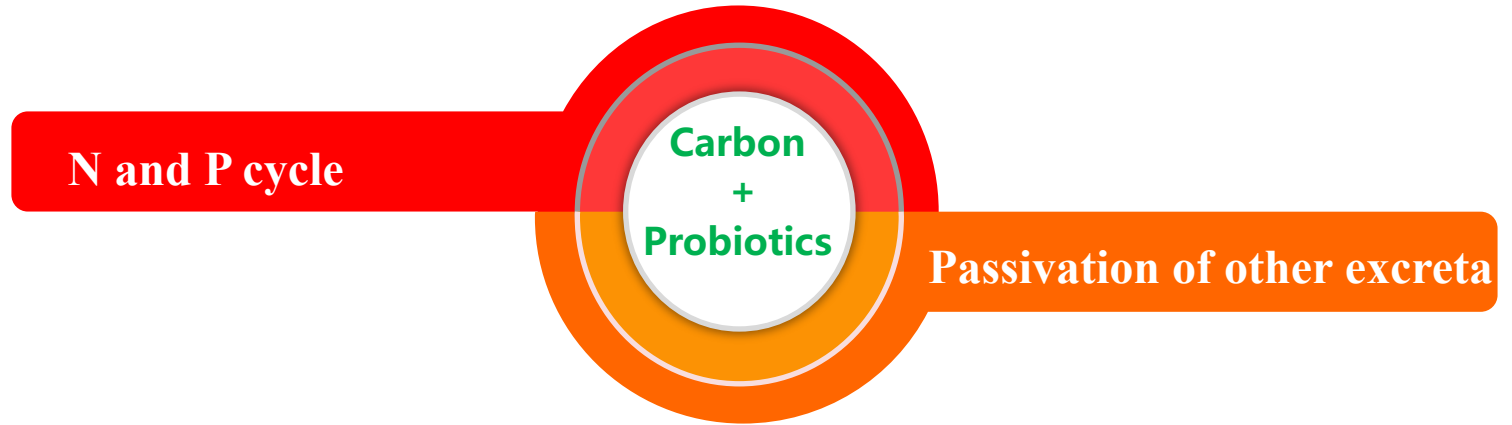


Material ratio

-0.17



Post-digestion feed - kinetic feedification

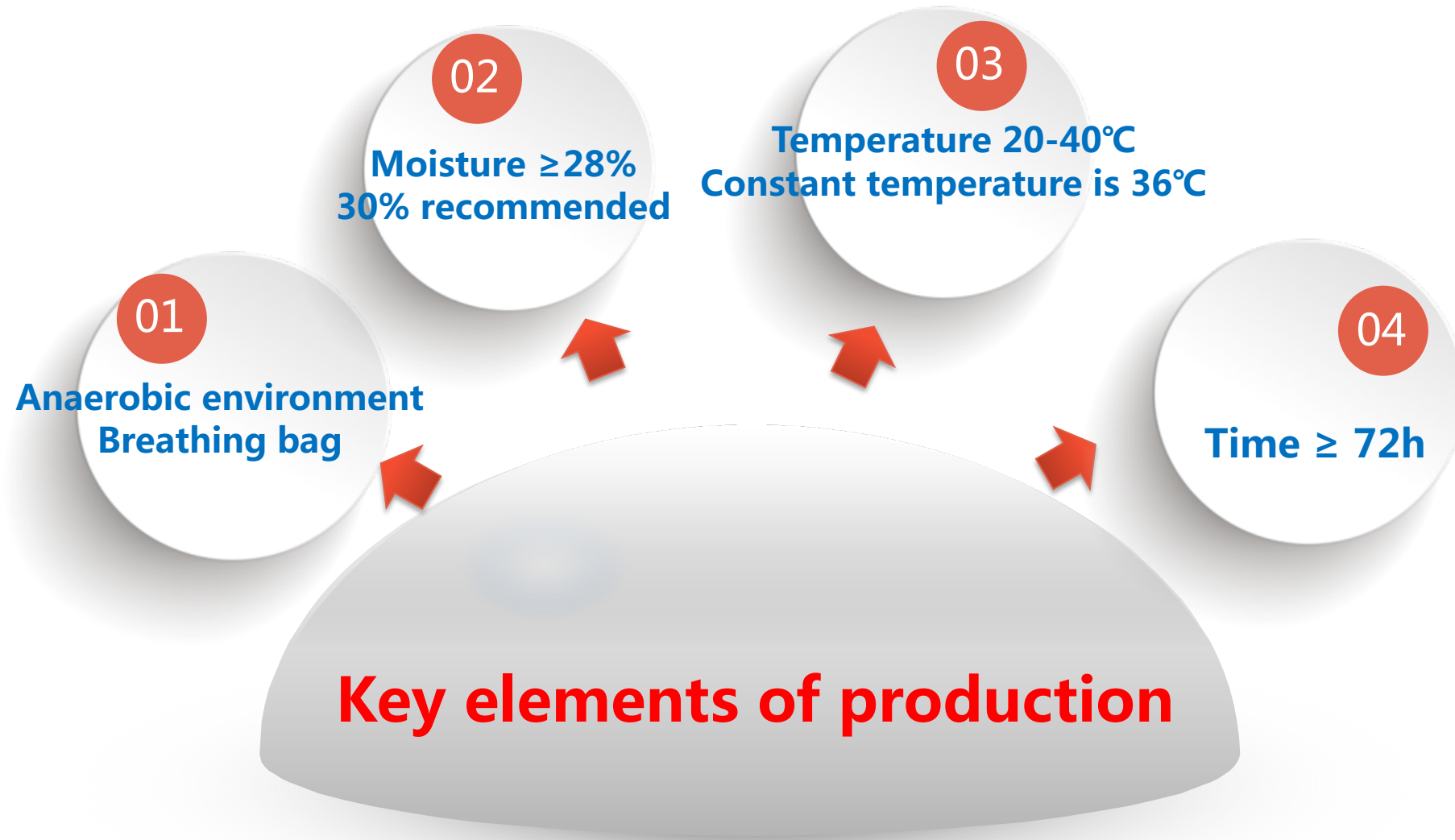


Feed mills use their own feed ingredients to produce

Help farmers reduce animal protection costs



Pre-digested post-digested feed - production parameters



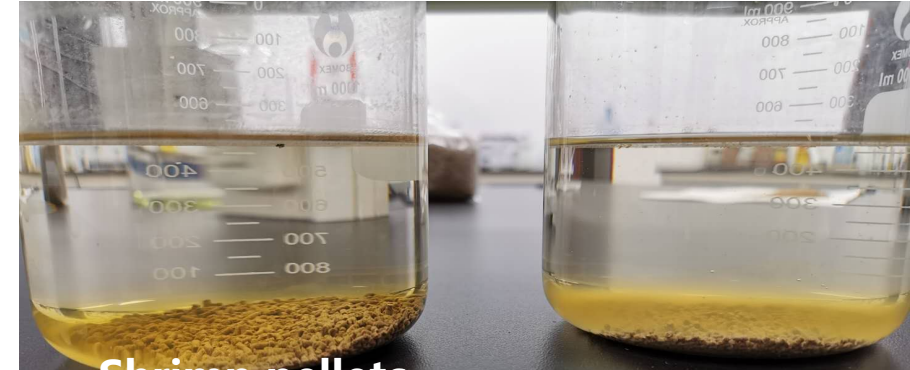
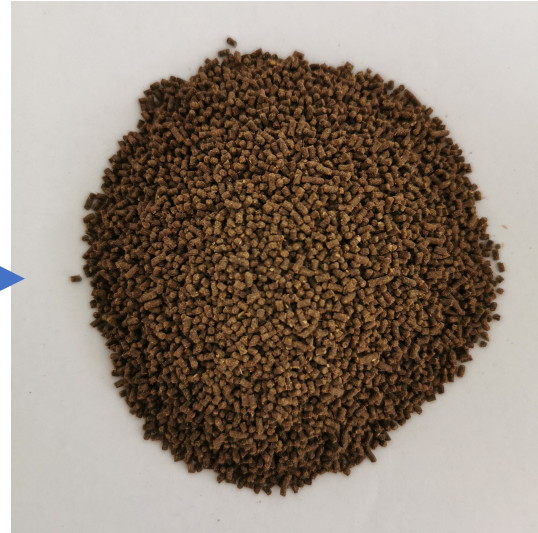
Aquatic indigenous probiotics, substrate selection is particularly important

Pre-digested pellets



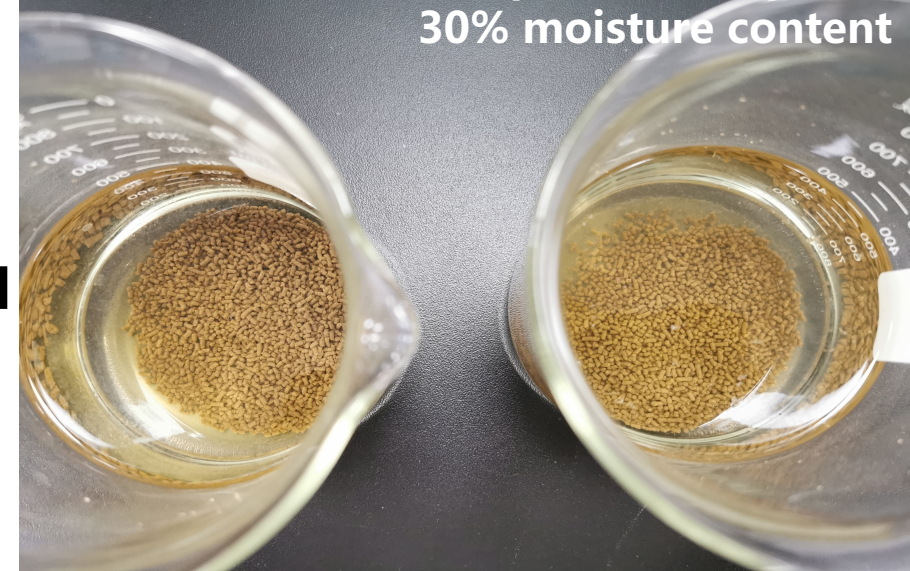
Water + strain mixed
into bacterial solution

Fermentation of
bacterial solution
mixed with dry
granular material



Shrimp pellets
Moisture content 9%

Soft pellet shrimp feed
30% moisture content



Shrimp pellets
Moisture content 9%

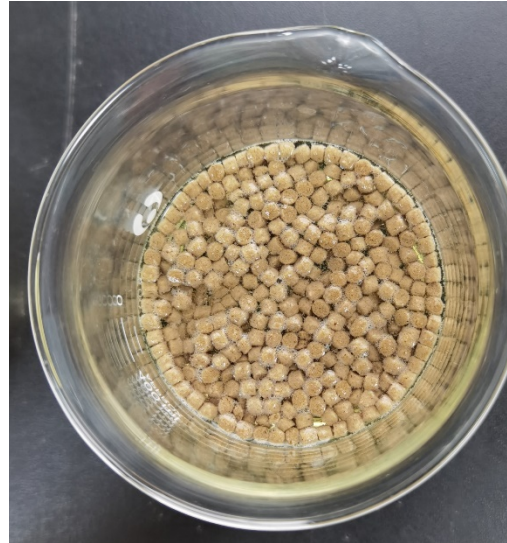
Soft pellet shrimp feed
30% moisture content

Soak in water
24h

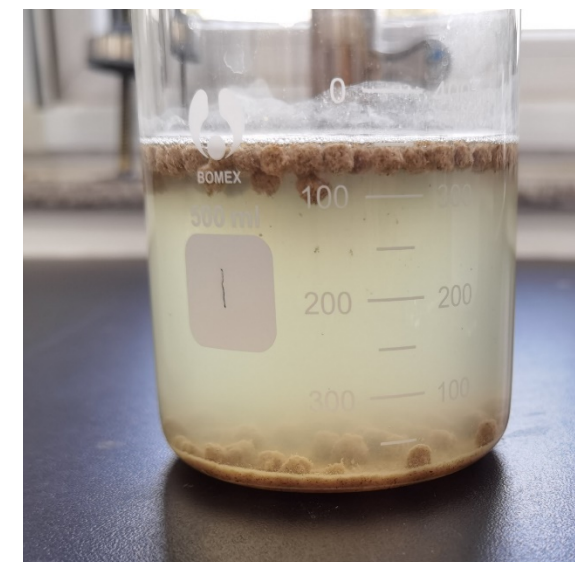
Pre-digested puffed material



Puffed feed
Moisture 8%



**Soft pellet
puffed feed**
Moisture 8%%



Soak in water 90min

Summary

1, functional feed, 2% fishmeal alternative in tilapia can be carried out without affecting growth.

2, carp with 30% pre-digested feed (no fishmeal) with 70% functional feed (5% fishmeal), better growth results

Thank you all!

