ANNUAL PROGRAM STATEMENT (APS)
TRANSFORM – HOLISTIC NUTRITION RESEARCH – SWINE AND PANGASIUS-VIETNAM

Q&A Responses

Question

Can TRANSFORM clarify the objective of the research for pangasius?. Will it need to be tested on commercial farms? Will the research test the effect of the feed additive (fermented product of Saccharomyces)? Is it a type of feed and does the researcher need to make its own feed, or will TRANSFORM provide it?

Answer

The research will test a product (a Saccharomyces cerevisiae fermentation product or SCFP). The product is a feed additive not a feed. The feed mill the researcher uses to make feed will incorporate the SCFP in to the feed. TRANSFORM will provide the SCFP product from Diamond V (Please see attached product detail and application for its use) for conducting the research. The applicant should also propose at least one other category of feed additive to be tested (e.g., botanical additives or essential oils), that they believe, from the results of peer reviewed local studies, can reduce the need for antimicrobials in pangasius production.

The research for pangasius trial can be conducted in a hapa-in-pond system and does not need to be conducted at a commercial farm.

The objective of TRANSFORM's research with pangasius is to identify options that reduce antimicrobial use in Aquaculture. For example, the researcher can compare the results of using this feed additive product to the control group, and look at the difference in immune function, among other factors. Below are some examples of factors that may be assessed.

1. To assess the effects of *Saccharomyces cerevisiae* fermented product (SCFP) on anti-oxidant status, intestinal morphology, immune responses and disease resistant against (....critical bacteria that cause pangasius diseases in Vietnam, etc).
2. To determine the effects of SCFP on growth performance and nutrient utilization of *pangasius*

EXPECTED OUTCOME(s)

- The SCFP reduce the need for antibiotics in the pangasius feeds and farming.
- The SCFP can improve the immunity of host against various disease outbreaks. Subsequently, the pangasius farmers can achieve high production and profit.

DVAQUA™

Product Profile

08/21

PRODUCT DESCRIPTION

DVAQUA™ is a natural nutritional health product used in aquaculture diets.

Association of American Feed Control Officials (AAFCO) Number: 96.8
International Feed Name (IFN) Number: 7-05-520
EU Catalogue of Feed Materials: 12.1.12

INGREDIENT COMPOSITION

Please refer to product label.

GUARANTEED ANALYSIS

- Crude Protein (min) .....15.0 %
- Crude Fat (min).....1.5 %
- Crude Fiber (max) .....25.0 %
- Ash (max).....9.0 %
- Moisture (max).....11.0 %
- Typical Analysis (as-fed) ..... *See next page for nutrient profile*

FEEDING DIRECTIONS

DVAQUA is a nutritional feed ingredient designed for further manufacture of nutritionally balanced feeds for all aquaculture.
Shrimp: 0.35% - 0.5% (3.5 - 5 kg/ton)
Fish: 0.125% - 0.25% (1.25 - 2.5 kg/ton)

PHYSICAL CHARACTERISTICS & HANDLING

DVAQUA is a flowable, granular material that mixes well with typical feed ingredients. The nutritional and handling characteristics are not affected by standard manufacturing processing methods or environmental temperature changes.

- Bulk Density: 31 - 34 lb/ft^3 (497 - 545 kg/m^3)
- Shelf Life: 24 months from date of manufacture

Diamond V™

DVAQUA™ | Product Profile

08/21

TYPICAL ANALYSIS- AS FED BASIS

Proximate Analysis:	
Crude Protein	15.00 %
Crude Fat	1.50 %
Crude Fiber	25.00 %
Ash	9.00 %
Moisture	11.00 %
Amino Acids:	
Arginine	0.78 %
Cysteine	0.45 %
Glycine	0.92 %
Histidine	0.42 %
Isoleucine	0.56 %
Leucine	1.13 %
Lysine (total)	0.81 %
Methionine	0.33 %
Phenylalanine	0.62 %
Proline	1.06 %
Threonine	0.63 %
Tyrosine	0.60 %
Tryptophan	0.23 %
Valine	0.81 %

Minerals:	
Calcium (Ca)	0.53 %
Chloride (Cl)	0.42 %
Magnesium (Mg)	0.42 %
Phosphorus (P)	0.54 %
Potassium (K)	2.43 %
Sodium (Na)	0.05 %
Sulfur (S)	0.42 %
Carbohydrates:	
Starch	<10.00 %
ADF	28.32 %
NDF	39.95 %

Approved 07/22/2021

If you would like more information, please contact your local Diamond V representative.

DiamondV.com

Diamond V

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iPP_DVAQUA_0821

DVAQUA
Feeding Direction

DVAQUA Feeding Direction

DVAQUA Application Method

DVAQUA can be mixed directly in **feed mill** or by top dressing in **the farm**.

Inclussion Rate of DVAQUA in Feed Mill

- **Starter Feed** = 0,35% (3,5 grams/kg feed)
- **Grow Out Feed** = 0,25% (2,5 grams/kg feed)

Inclussion Rate of DVAQUA in The Farm by Top Dressing

- **Mixing using Binder**
  - ***Blind Feeding* (DOC 1 – 30)** : 5 – 7 grams/kg feed
  - **> DOC 30** : 3 – 5 grams/kg feed
- **Mixing without Binder**
  - ***Blind Feeding* (DOC 1 – 30)** : 7 – 10 grams/kg feed
  - **> DOC 30** : 5 – 7 grams/kg feed

Note: Highly recommended to use higher inclusion rate of DVAQUA if mixed without binder to anticipate the leached DVAQUA into the water body.

DVAQUA Application Method in The Farm by Top Dressing

1. DVAQUA is weighed according to the day of cultivation (DOC), inclusion rate, use of binder, and the amount of shrimp feed given
2. Then, DVAQUA is dissolved using clean water
3. The dissolved DVAQUA is mixed with the shrimp feed until homogen. The mixing method can be done using the concrete mixer or using bare hand
4. Then, wait for 10 – 15 minutes until the DVAQUA-mixed shrimp feed dry
5. The DVAQUA-mixed shrimp feed is ready to spread directly into the shrimp pond or using the autofeeder
6. The powder feed can be mixed with DVAQUA directly, then homogenized with water and pour it into your pond
7. It is recommended to give DVAQUA every feeding time to maintain the availability of metabolites in your farmed shrimp.

FAQ (Frequent Asked Question)

1. **Can DVAQUA be mixed with other feed aditives such as probiotics, plant extracts, etc.?** **Of course! DVAQUA is a natural product contained hundreds of metabolites and does not have any antagonistic effect on these feed aditives, so it is safe to use DVAQUA with other feed aditives.**
2. **Can DVAQUA replace the role of probiotics in the feed mix?** **The content of metabolites contained in DVAQUA is in free form and works synergistically. We do not recommend replacing probiotics with DVAQUA, because each probiotic has a different function.**
3. **DVAQUA which I dissolved using water left a suspension. Can I use these suspensions?** **The suspension formed is the yeast cell wall/shell and the remaining fermentation substrate (less than 5% of the product composition). You can include the remaining sediment to mix with your shrimp feed for maximum effect.**
