



## Gro-2-Max Introduction & Trial Protocol

This document has been drafted to introduce the Gro-2-Max probiotic proposed for usage as a feed additive in poultry farms. The details of this document are as follows:

### Product Introduction

Commercial Name	Gro-2-Max
Manufacturer	BNA (BioNatural America) Institute
Classification	Biosafety Level 1 - Organic Probiotic
Packages	3.5 oz. (100g), 1.1 lbs. (500g)

### Contents

Gro-2-Max is comprised of a blend of beneficial bacteria carried onto a set of natural nutrients as follows:

#### Bacterial Strains

- Bacillus subtilis
- Lactobacillus acidophilus
- Pediococcus acidilactici
- Pediococcus pentosaceus
- Saccharomyces cerevisiae

#### Nutrients

- Rice Bran
- Rice Flour
- Soybean Meal
- Corn Protein
- Salt
- Trace Nutrients (Manganese, Iron, Zinc)
- Citric Acid

### Application

Gro-2-Max is to be used as a feed additive for poultry at the feed ratio of 0.05 : 1, which means that a total quantity of 1.1 lb. (500 grams) is to be added to every ton of feed. The product can be either added to the drinking water or feed in the following manner:

#### Addition to Water

This is the most recommended mode of addition to avoid product waste and to ensure optimal distribution, provided that this practice requires the presence of drinking water containers for the chicken/turkeys with access for daily addition, and the addition procedures are recommended in the following manner:

- Pre-mix the total daily amount of Gro-2-Max with two cups of water. It should be stirred well, left to pre-activate for one hour, then added to the full day's drinking water in as much of an even distribution as possible. Generally, 1 ½ teaspoons will mix with one gallon of water, and 2 ½ Tablespoons will mix with up to 5 gallons total.

- Add Gro-2-Max to drinking water once per day based on the total amount of water consumed, for the first four days. Gro-2-Max may then be added to drinking water once every two days.

### Addition to Feed

If the addition to water is not feasible, Gro-2-Max may be added to feed in the following manner:

- Add at the rate of 3.5 oz. Gro-2-Max per 400 lbs. feed.
- Due to the fact that the addition ratio is a very small ratio, very thorough mixing of the product with feed should be undertaken to assure even.
- Gro-2-Max should be mixed away from any temperatures in excess of 104° F at any stage of exposure.
- Once the feed is mixed with Gro-2-Max it must be fully consumed within 3 days of preparation.

### **Precautions**

The following precautions are to be noted when handling the Gro-2-Max product:

- The product's expiration date is printed on the back label.
- The product should be stored away from direct sunlight, in temperature ranges between 38°-95° F.
- Once a package has been opened it should be consumed within 21 days.

### **Gro-2-Max Mode of Operation**

Gro-2-Max has a remarkable ability to inhibit growth of pathogenic microorganisms achieved through multiple techniques. The most important of which are as follows:

- pH reduction
- Gut acidification
- Production of anti-microbial substances
- Competition with pathogenic bacteria for intestinal attachment and nutrients
- Modulation of immune system
- Controlling and limiting secondary bacterial effects
- Rapid establishment of beneficial gastrointestinal microflora

### **Benefits & Return on Investment**

The usage of Gro-2-Max as a feed additive has numerous benefits and added inputs, the most significant of which are as follows:

#### Improving FCR (Feed Conversion Ratio)

The first and most significant benefit from using Gro-2-Max is its effect on improvement of the FCR by up to 30%, depending on the broiler/layer type and feeding program used. This is usually calculated in one of the two following ways:

#### **a) Weight Increase**

This is the case where the growing cycle is maintained at the same growing period (usually around 42-45 days) and the same quantity of feed usually consumed. In this case the outcome is expected to be an increase in the average broiler weight by up to 25%-30% in comparison to the same application program without using Gro-2-Max.

### ***b) Feed Reduction & Cycle Time Reduction***

Some growers prefer to have the chicken/turkeys sold at a set weight and prefer to not raise above average weight chickens. In this case Gro-2-Max may have positive results as follows:

- 25% to 30% reduction of consumed feed necessary to reach target weight.
- 25% to 30% reduction in the growing time necessary to reach the target weight, which will automatically mean 2-3 more cycles per year.

#### ***Examples***

- In the first case of weight increase being the grower's target, if we assume that the target average weight per chicken through normal growing procedures is 2,000 grams with 5,000 grams of feed per chicken, the FCR is 2.5. Adding Gro-2-Max will improve the FCR down to 2 and thus the grower using the same 5,000 grams of average feed per chicken quantity will reach an average chicken weight of up to 2,500 grams at the end of the same duration growing cycle.
- In the second case of feed reduction and cycle time reduction, the standard growing cycle used to consume an average of 5,000 grams per chicken in order to reach an average chicken weight of 2,000 grams in 45-days. When adding Gro-2-Max to the growing cycle, the net results will be the same chicken weight of 2,000 grams, but with an average feed consumption of 4,000 grams instead of 5,000 grams in addition to a growing cycle of 35-37 days instead of 45-days.

#### **Reduction of Mortalities**

In addition to its effect in improving the overall immune system performance of the broilers, the application of Gro-2-Max has a very significant effect, with improvements of up to 40% over the standard mortality rates. In addition, when used in conjunction with the topical solution Farm360, clean the farm and inhibit the growth of harmful microorganisms during the growing cycle when sprayed on farm floors before the start of the growing cycle, mortalities may be reduced even further.

#### **Content Improvement**

In addition to the direct economic returns previously explained, the usage of Gro-2-Max has multiple benefits on the aspects of content of the broilers, some of which are as follows:

- Improvement of general broiler meat flavor by improving protein content and lowering fat content
- Improvement of relative organ weights, mainly feather, carcass, liver, gizzard, heart and spleen relative weights
- Improvement of broiler biochemical parameters, mainly:
  - Total protein
  - Albumin
  - Globulin
  - A/G ratio
  - Creatinine
  - Calcium
  - Phosphorus
  - ALT, AST, ALP

## **Proposed Trial**

To assess the true benefits of using Gro-2-Max, it is recommended to apply a field test for comparison in the following manner:

- The test is to be applied on 2-equal groups where the first group is to be grown according to the standard growing procedures, and is to be hereby called the Control Batch. The second completely typical group is to be grown in the exact same manner and with the exact same procedures applied for the Control Batch with the only addition of Gro-2-Max in one of the previously detailed addition procedures. This group is referred to as the Test Batch.
- Comparisons and analysis are to be applied throughout the growing cycle on the following aspects and points :
  - Mortality rates
  - Quantities of consumed feed
  - Mean body weight comparison which is to be done by taking a sample of at least 30-50 broilers; weighing each and taking the average between their weights in the days 8, 15, 25, 30, 35, 40 & 45 of the growing cycle
  - Biochemical parameters previously detailed can be monitored by taking five broilers from the control batch and five others from the test batch for application of the biochemical parameter tests on the 10<sup>th</sup>, 20<sup>th</sup>, 25<sup>th</sup>, 30<sup>th</sup>, 35<sup>th</sup>, 40<sup>th</sup> and the last day of the cycle

Such a trial and comparison will provide an overall view of the economical and technical benefits acquired when using Gro-2-Max as a feed supplement.

## **Other Birds**

Gro-2-Max has the same benefits and the same dosing procedures when used as a feed additive for other birds, including ducks and geese.

## **Post-Trial Discount Terms**

Should you choose to incorporate Gro-2-Max into the regular feed regimen at your farm following the trial period, you will have the opportunity to purchase Gro-2-Max at a 45% discount off retail price in perpetuity. Further discounts are available, based on volume and term contract.