Hebei Weierli Animal Pharmaceutical Group Co.,Ltd

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FAT 2020 - For Broiler

Begin to use from 20 days age, only need to use for 20 days

Advantage :

1, Promote weight gaining and reducing death
2, Red the cockscomb, brighten feather, and help with stomach
3, Better resistance of disease, reduce the drug dosage, and reduce the costs of medicines.

Main ingredients

Growth factor peptide (GHRP-2), vitamin A, vitamin D3, vitamin E etc.

Indication

1, Nutritional supplements: this product is specially for supplement the necessary nutrition of meat, apply to exported meat and poultry in the growth, fattening, red crown, yellow claw, brighten feather in later period;
2, Promote healthy growth: feed intake increases more than 5% after continually use of the products, and the rates of feeds to meat reduce 2%, the product can also reduce 2-3 days to slaughter in advance;
3, Improve meat quality: this product can increase the poultry chest, leg muscle, reduce abdominal fat, make the meat succulent;
4, Resistance to stress: long-term use can increase resistance to environment fast stress and immunity in poultry;

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【Product features】

Strong urges growth, Crown red brighten Hair
Reduce Feed/meat ratio, enhance immunity

✓ Use 5-7 days，Crown red Hair become brighter
✓ Use 10 days，Improve uniformity, reduce sudden death；
✓ Use 15 days,Improve the body resistance to disease, improve immunity, reduce morbidity.
✓ Use 20 days, Reduce Feed ratio of 0.1，weight gaining 100-250g/per chicken

Usage

Mixed feeding: for broiler ,400g product mix 1 ton feed,
Mixed drinking: for broiler,100g product mix 500L water,begin use on 20th days age until after the slaughter

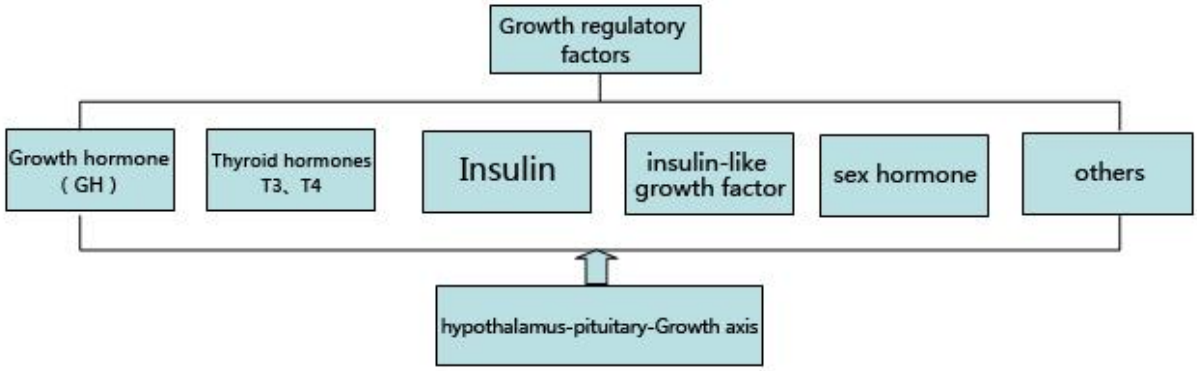
Packing specification

500g/bag * 20 bags/piece

Growth - promoting factor release peptide （GHRP-2）

1.Background

Animal growth is a complex process of biological metabolism which affected by genotypes, hormones, nutrition and the environment and other aspects. The effect of these factors on growth is directly or indirectly affected by the animal endocrine system. Growth hormone (GH), thyroid hormone (T3, T4), insulin (Insulin), insulin-like growth factor (IGFs), sex hormones and other hormones are very important growth regulators during animal growth, but the central role is growth hormone(Fig. 1)



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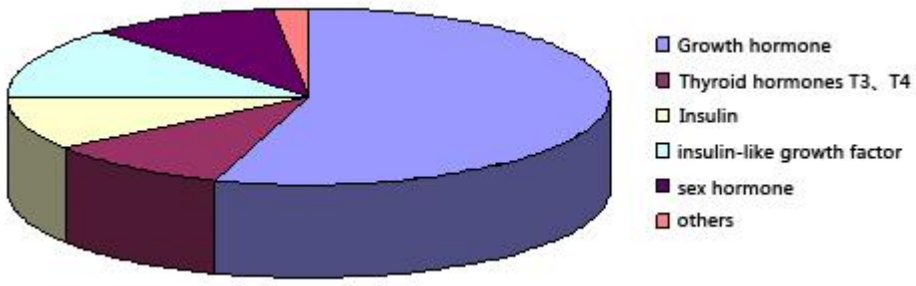

(Fig. 1)Animal growth regulator

Growth hormone is a peptide hormone containing 191 amino acids. It is synthesized, stored and secreted by the growth hormone cells in the pituitary. It can regulate nutrition distribution, promote protein synthesis, reduce fat deposition, promote fat to muscle transformation and promote the synchronous development of bone and viscera, improve animal growth rate, improve feed efficiency and other biological functions. Growth hormone synthesis and secretion is regulated by the growth factor releasing hormone (GHRH) and somatostatin (Somatosatin, SS) released from the hypothalamus (Fig. 2,3)

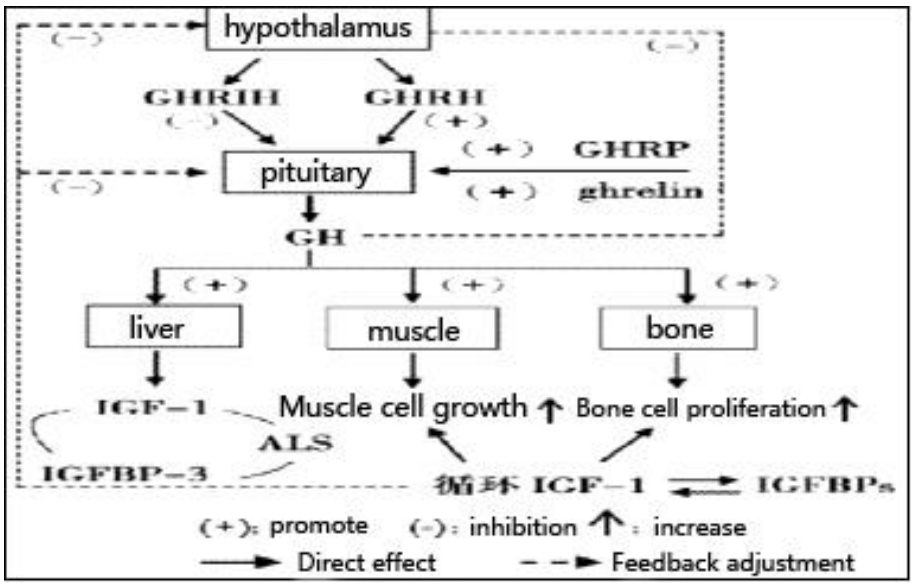

Fig. 2 GH regulation mechanism chart

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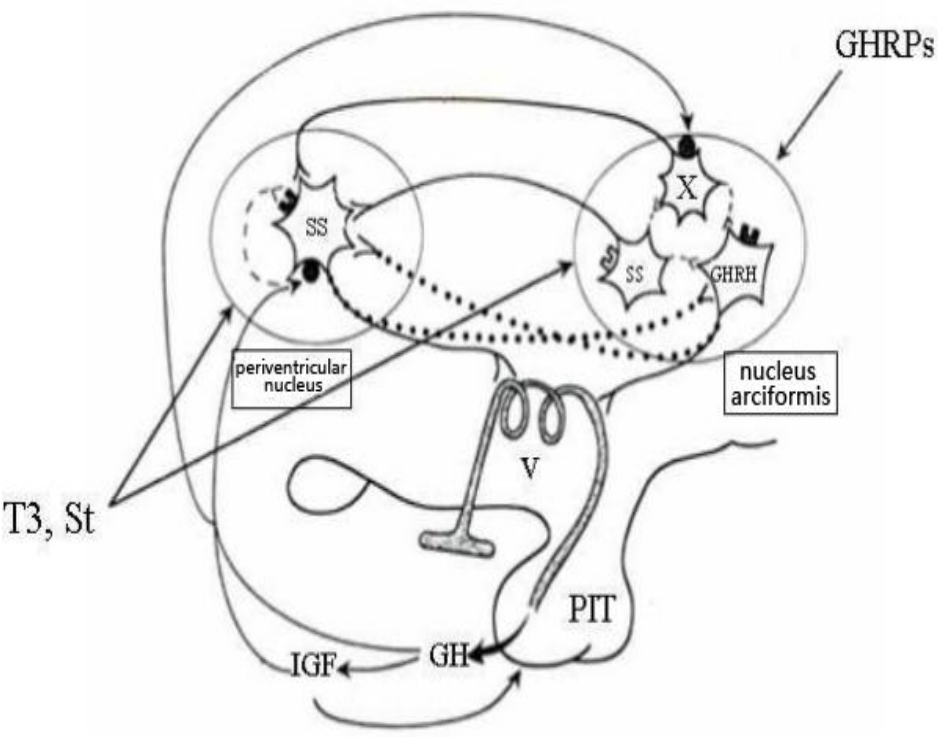

Fig. 3 GH Neuroendocrine Regulation Network

Animal growth and development mainly depends on the hypothalamus - pituitary - target organ pathway (growth axis). The hypothalamus secreting growth hormone-releasing hormone and somatostatin according to the body's needs, which can regulate the secretion of GH; GH circulates to the liver and binds to the growth hormone receptor (GHR) on the surface of the cell membrane, initiates intracellular signal transduction and promotes the expression of insulin-like growth factor (IGFs) Blood circulation to reach the local tissue, promote the growth and differentiation of tissue cells. It is a new way to regulate growth hormone and IGF-1 level in the animal by increasing the growth axis, promoting weight gain and improving feed conversion and meat quality. At present, more studies have been done to increase the concentration of GH in animals by direct administration of GH or exogenous GH release factor (GRF) by injection to change the distribution of nutrients and exert growth-promoting effects. GH is a protein that is easily degraded by pepsin digestion when administered orally. However, the injection of GH has limitations, which brings great inconvenience to clinical practice. How to promote the release of GH in animals by external means is a hot spot for animal nutritionists

Found in the twentieth century, growth hormone-releasing peptide (GHRP) is a kind of enkephalin analogue with specific growth-promoting activity. GHRP-2 is a small peptide containing a D-type amino acid with a molecular formula C45H55N9O6 (Fig. 4) and a molecular weight of 817.9. Fat 2020 is obtained by a number of GHRP-2 units (molecular formula [C45H55N9O6] n) (Figure 6) through the biological engineering technology, microbial fermentation and multi-expression, molecular weight of 40 ~ 42KD. Further studies on GHRP-2 showed that GHRP-2 could significantly promote the synthesis and secretion of growth hormone (GH), and did not affect the rhythmical release of endogenous GH, which showed a good application in regulating the growth of livestock and poultry prospect. GHRP-2 molecular

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weight is small, and its chemical structure by the D-amino acid instead of L-amino acids (Figure 5), to a certain extent, to protect it from degradation, laid the basis for its oral use.

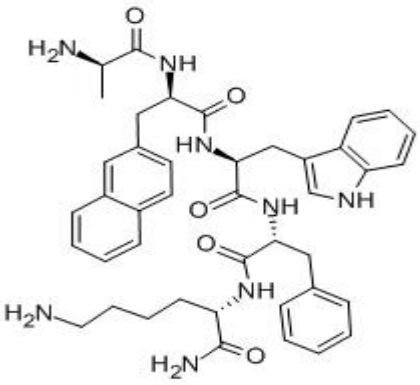


Figure 4 GHRP-2 chemical formula

Ala-D-2-Nal-Ala-Trp-D-Phe-Lys-NH_2

Figure 5 GHRP-2 Amino acid sequence

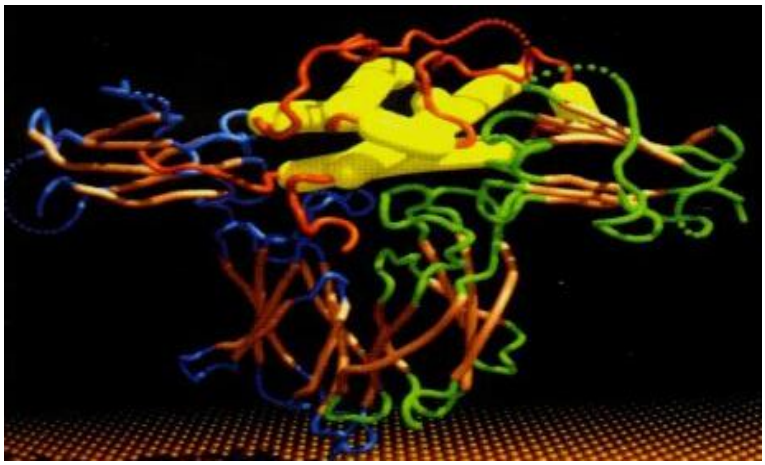


Figure 6 GHRP-2 Cross-linked three-dimensional configuration（[C45H55N9O6]n）

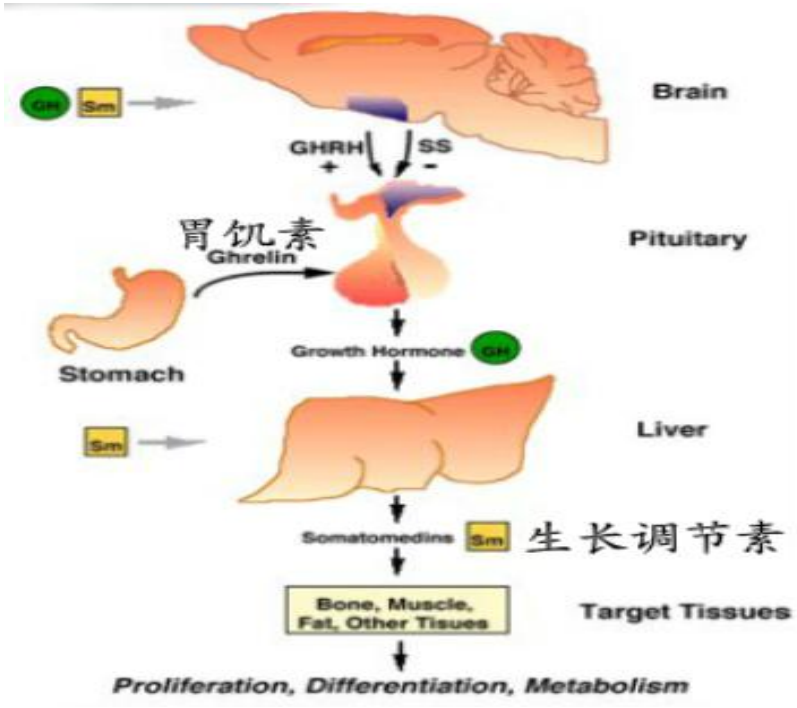
2. GHRP - 2’ Function and mechanism of action

Fat 2020 be hydrolyzed to GHRP-2 in animal body,to promote the release of endogenous GH,thus play a role of growth promoting effect,Its function is: Adjust animal nutrition

distribution; Promote the synchronous development of bones,viscera and and other organs; Promote the synthesis of protein;Reduce the fat deposition, promoting the transformation of fat to muscle; Promote the growth and development.

GHRP-2's Mechanism of action may be in the following aspects: Stimulate the pituitary gland's GH directly to secrete GH;Acting on the arcuate nucleus of the hypothalamus thereby promote the release of GHRH,and functionally antagonizes SS；Combining with GHRP receptor systems,and then through the receptor signaling pathway play a series of biological effects;Activating at least three second messenger systems in the cell,Including CA (adenylate cyclase) -cAMP-protein kinase A.Ca2+ channel;； IP（Phosphatidyl inositol）-DAG（ diacylglycerol）-PKC and other way.(Figures 7 and 8)

Figures 7 :Promote growth Mechanism of action figure of GHRP-2



Figures 8 :Promote the growth signaling pathways of GHRP-2

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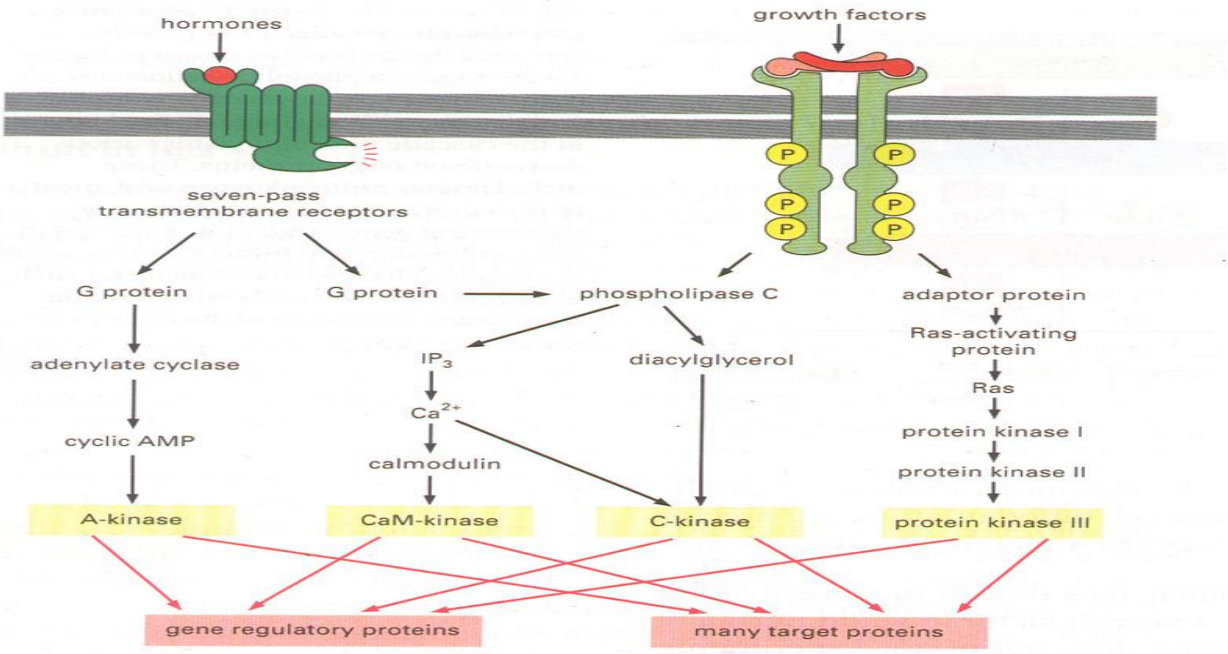

2.Product description

1. The product is based on the characteristics of rapid growth of broilers,especially designed for the latest, most scientific, the most balanced formula. It has more comprehensive nutrition that fully suits the growth of broiler body needs and adding active enzymes, beneficial bacteria and growth factor to speed up the growth of broiler chickens and stable flora balance in intestine of broiler.

2. Relieve a variety of stress symptoms effectively, such as bursa, kidney, pain wind and long-term use of drugs of kidney enlargement hemorrhage, liver enlargement, white prevention of fatty liver.

3. Effectively alleviate the excessive growth of broiler chickens and a variety of causes of ascites.

4. The product contains Echinacea polysaccharide, astragalus polysaccharide can stimulate the immune system to produce immunity fast speed, improve the body's resistance to disease.

4 Product Efficacy

◇ **Reduce feed consumption （Weight gaining 100~250g/per chicken）**

◇ **Reduce Feed/meat ratio((reduce of 0.02-0.1)**

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◇ **Increase feed conversion rate and daily weight gaining:** The product is rich in a variety of bacteria, enzymes, amino acids, peptides,and the bacteria can produce a variety of digestive enzymes in animal body,that helps producing B-group vitamin,growth factor and other substances. The factors can balance the content of various nutrients and adjust the body electrolyte balance,thereby enhancing the absorption conversion efficiency and daily weight gaining.

◇ **Shorten the feeding cycle,improve the absorption and utilization rate of amino acids.**

◇ **Natural antioxidant effect:** The product can reduce the generation of free fatty acids significantly and slow down the cause of fat auto-oxidation ,reduce the generation of peroxides and feed mildew,and have a good protective effect for a variety of vitamins, conducive to the bioavailability of feed nutrition.

◇ **Promote the development of skeletal and internal organs, improve meat quality**: The product is rich in probiotics, oligosaccharides and peptide substances that can improve the flavor of amino acids' content in the meat, improving the quality of carcass, muscle's water-holding capacity, thereby enhancing the natural flavor and taste of meat.

◇ **Improve the meat poultry's feather color:** Improve the B vitamins content in the product, improve meat poultry's feathers and foot tibia color, brighten hair color, skin luster, and treat peck feather, peck anus symptom etc. that caused by nutritional deficiencies.

◇ **Improve animal immune function:** The beneficial bacteria in the products is a non-specific immune enhancer, that can activate the body's humoral immunity and cellular immunity, enhance immunity and disease resistance; Product could decrease the chicken flocks less disease, improve the growth uniformity of chicken flocks.

◇ **Ease the stress caused by high temperature or high density breeding and the external environment. Reduce morbidity and cull-and-death rate, improve economic efficiency**

◇ **Improve the farming environment:** The beneficial bacteria in the product can reduce the production of nitrite, ammonia, trimethylamine and hydrogen sulfide in animal excrement, so that to improve the feeding environment and reduce the occurrence of respiratory and digestive tract diseases;

5 Dosage and Usage

Fast large broiler Advice begin to use from the age of 20 days, 100 grams per bag add 500 kg water, all-day use dose is divided into twice use: one time in the morning and one time in afternoon, feed drinking water for 4 hours every time, and continuous use until become full grown and ready for slaughter.

6 Security testing

Clenbuterol hydrochloride rapid detection(negative)

albuterol rapid detection(negative)

ractopamine rapid detection(negative)

◇ Microbial fermentation production of multi crosslinking products more, do not contain any hormones, green pollution-free.
◇ The residence time in the body is short, no residue.

7.Notice

◇Can not use with oral liquid (non aqueous solution) at the same time.

◇This product is ultra-fine powder, it is recommended that when use the drugs,add the drugs into the right amount of water with stirring.

◇Rinse the packaging inside with drinking water before use.

◇Avoid use with strong acid and alkaline drugs at the same time with water.

8 Economic benefit calculation of the farming

Feed/meat ratio=Total consumption of feed/Total weight gain（KG）

Note:Use from 20 days of age to slaughter, per chicken drinks 8L water to calculate the dosage,each chicken net weight gained100g, Feed/meat ratio reduced 0.02.

三、Experiment

Experiment 1

3.1.1 Test time and place:

2015-08-18~2015-09-07， Pingyuan County, Dezgou City, shandong province

3.1.2 Experimental animal

Variety: broiler

Farming methods: Caged broiler

3.1.3 Experimental grouping

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This farm have six sheds, east-west, from north to south lined up. A director in charge of production work, at the same time with a veterinarian who is responsible for daily disease diagnosis and medication.

In the selected test site, there were 6 breeding sheds. Before the experiment, the artificial factors were selected according to the principle of randomness, and 4, 5 and 6 were selected as the experimental group and 1, 2 and 3 as the control group.

Experimental group and control group in addition to experimental medication, other major environmental factors (temperature, humidity, light, ventilation, etc.) and feeding management mode are the same according to the unity of the program execution.

3.1.4 test drugs

3.1.4 Experimental drug.

Name：FAT2020

Manufacturer: Hebei Weierli Animal Pharmaceutical Group Co., Ltd.

Ingredient: GHRP-2 Content:10%

Package: 100g per sachet Batch number: 2015008

Dosage and usage: 100g mix with 500kg, treatment from 20days age. Divide whole day dosage into two parts, feed water for 4 hours each time.

3.1.5 Observe and evaluate

Clinical observation

During the experiment, the growth state and health state of the chickens were observed, and the whole uniformity of the chickens was observed, especially the weight of the chickens was very light, and the individuals were significantly smaller than the other chickens.

2.Slaughter weight, the total consumption of materials, feed/meat ratio

According to the total amount of feed consumed and the average weight of slaughter, the whole feed/meat ratio was calculated and compared.

3. feed/meat ratio=Total consumption of feed(kg)/Total weight gain（KG）

4.Cost accounting

Accounting for the experimental process of drug use costs, cost savings, to create value

3.1.6 Test results and analysis

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Clinical Observation

During the whole breeding process, the general situation is normal, no abnormal performance, no major diseases

Summary of main data

From the test results, the data of trial group was significantly better than the control group, but the difference between the three control groups was not significant, while the gap between the three test groups are also small. The average weight of the test group was 0.27kg higher than that of the control group, and the feed/meat ratio of the experimental group decreased 0.07. Through the calculation and analysis of the feed/meat ratio, it was found that the test group was significantly higher than the control group, indicating that the production efficiency of the test group was significantly higher than the control group.

Slaughter weight, consumption of materials and feed/meat ratio

From the slaughter weight and consumption data, the test group did not significantly increase the feed intake while increasing the slaughter weight, which was in sharp contrast to the traditional growth products. This product is mainly through the improvement of feed utilization and transformation play a growth-promoting effect

Table 1. Weight and feed/meat ratio

Group	Feed amount (kg)	Slaughter weight（kg）	Marketing weight（kg/brids）	Feed/meat ratio
Control Group1	37840.00	22464.00	2.34	1.68
Control Group 2	42800.00	25480.00	2.43	1.68
Control Group 3	38040.00	21860.00	2.38	1.74
Trial Group 4	36800.00	22344.00	2.66	1.65
Trial Group 5	40600.00	25390.00	2.68	1.60
Trial Group 6	39040.00	23670.00	2.61	1.65
Average of Control Group	-	-	2.38	1.70
Average of Trial Group	-	-	2.65	1.63

Table 2

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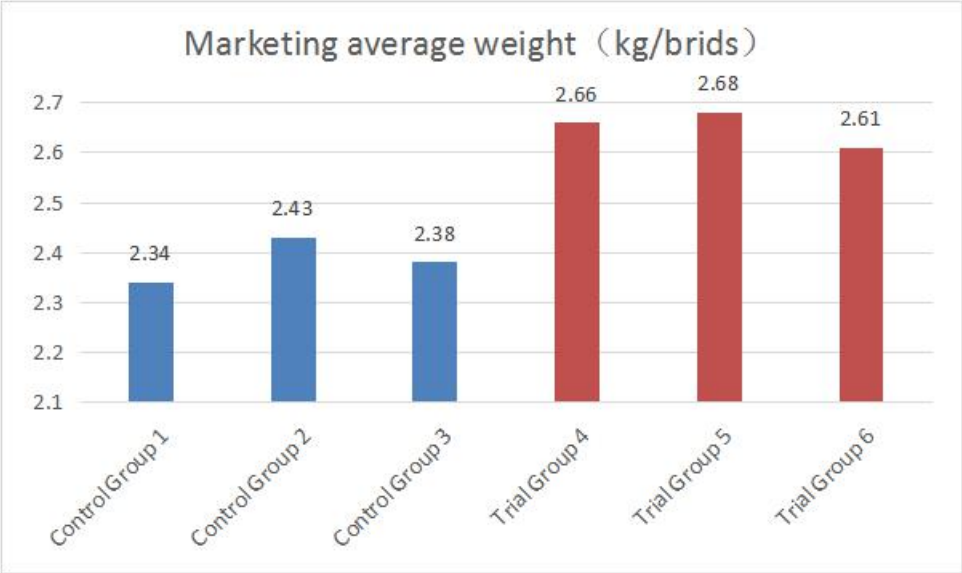

Table 3

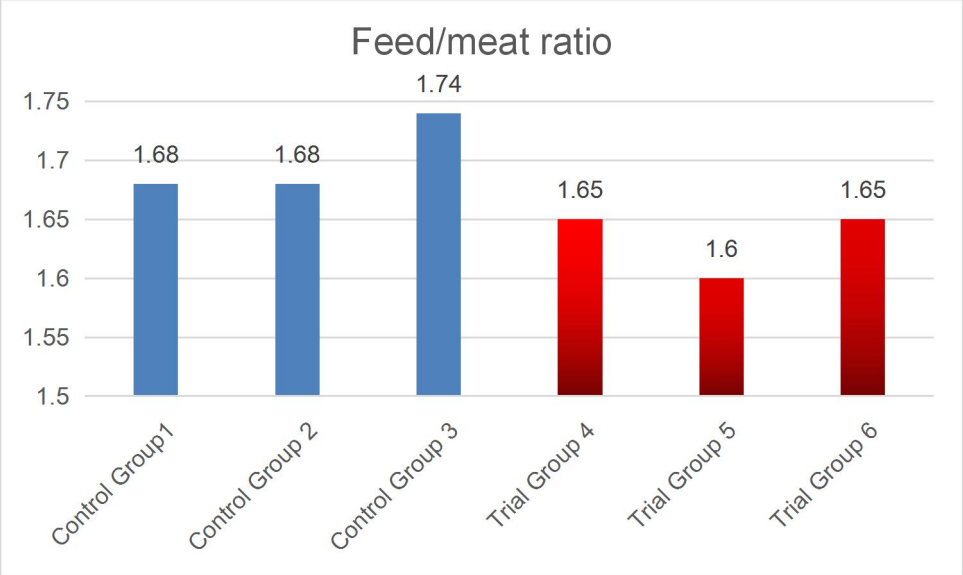

Table 4 Main assessing indexes.

Group	Bird Amount	Slaughter Number	Survival rate (%)	Marketing weight（kg/bird）	feed/meat ratio
Control 1	11000	9600	87.3	2.34	1.68
Control 2	11500	9800	85.2	2.36	1.68
Control 3	10000	9200	92	2.38	1.74

Trial Group 4	10000	8400	84	2.66	1.65
Trial Group 5	10000	9460	94.6	2.68	1.60
Trial Group 6	10000	9060	90.6	2.61	1.65
Average of Control Group	-	-	88.2	2.36	1.70
Average of Trial Group	-	-	89.7	2.65	1.63

4.Appearance

（1） After 7 days of usage, the appearance of the chickens was significantly different. Compared with the flocks, feathers, dullness, and beard pale and small, the chickens in the control group were higher in uniformity and higher in spirit.

In the control group, the feathers were inverted

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In trial group,cockscomb brighter and redder

3.2 Experiment 2

3.2.1 Test time and place

2014-11-25~2015-01-06，Changyi City, Shandong provience

3.2.2 Experimental animal：

Breed: White feather broiler(AA)

Breeding methods: Caged broiler

3.2.3 Experiments Group

This farm have six sheds, east-west, from north to south lined up. A director in charge of production work, at the same time with a veterinarian is responsible for daily disease diagnosis and medication.

Six experimental sheds were selected in the experiment site, and the human factors were selected according to the random principle before the experiment. The group 4 was selected as trial group, the shed 1,2,3,5,6 were chosen as the control group.

In the experiment group and the control group, except medicines, all the environmental factors (temperature, humidity, light, ventilation, etc.) and the feeding and management mode were carried out according to the unified plan .

3.2.4 Experimental drug.

Name：FAT2020

Manufacturer: Hebei Weierli Animal Pharmaceutical Group Co., Ltd.

Ingredient: GHRP-2 Content:10%

Dosage and usage: 100g mix with 500kg, treatment from 21 days age, divide whole day dosage into two parts, feed drinking water for 4 hours of each time.

3.2.5 Observe and evaluate

1.Clinical observation

During the experiment, the growth status and health status of the flocks were observed, and the overall uniformity of the flocks was observed in the middle and later stages. Whether or not weight was particularly light was found, and the individuals were significantly smaller than those of other groups.

(2) Feed/meat ratio=Total consumption of feed(kg)/Total weight gain（KG）

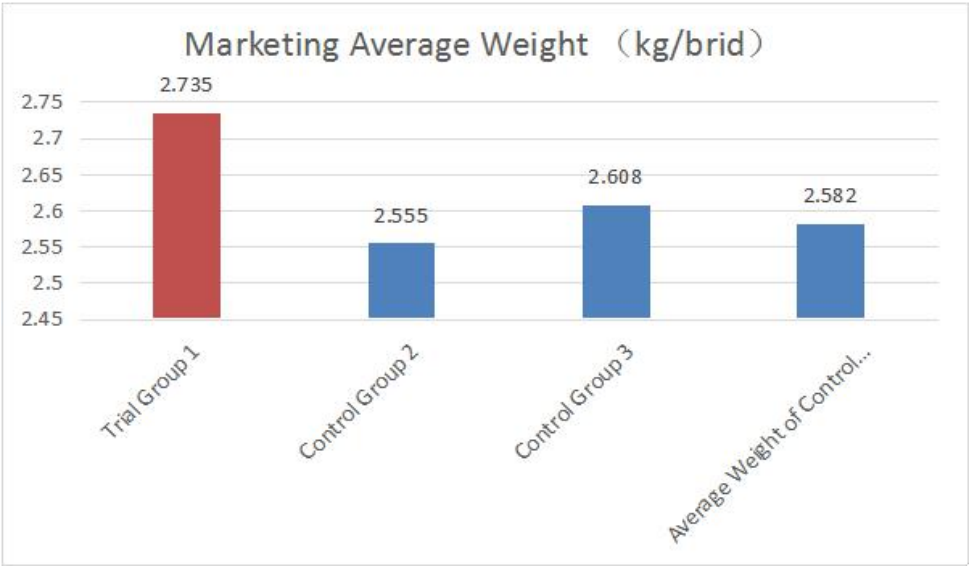
(3) Cost accounting
Accounting for the experimental process of drug use costs, cost savings, to create value

3.2.6 Test results and analysis

(1) Clinical Observation
The whole breeding process, the general situation of normal flocks, no abnormal performance, no major diseases.

(2) Summary of main data
From the test results, the data test group was significantly better than the control group, but the difference between the three control groups was not significant, while the gap between the three test groups are also small. The average weight of the test group was 0.148kg higher than control group, and the feed-meat ratio of the experimental group decreased by 0.094.
Tablet 1 Summarized data

Shed No	Feed Amount (kg)	Marketing Weight （kg）	Marketing Average Weight （kg/brid）	FCR
Trial Group 1	44120	26058	2.735	1.577
Control Group 2	41040	23580	2.555	1.688
Control Group 3	43320	24810	2.608	1.653
Average weight of Control Group	-	-	2.582	1.671



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