

# **“EFFICACY OF ALFALFA Q IN ENHANCING THE GROWTH OF CHICKS”**

## **1. INTRODUCTION**

India is the fourth-largest chicken producer in the world after China, Brazil and the USA. In India, the per capita consumption of chicken raised from 400grams per annum, to 2.5 kg per annum in the last 5 years. Human nutritionists recommend a minimum 10 kg chicken per annum for a healthy adult human, which means that the Indian poultry market is laden with opportunities. Adult populations in most developed countries consume over 20 kg of chicken per annum. India has 1.23 billion people and the number is growing every year. The focus is on “Development”, meaning good food, better health & living conditions for everyone. People spend more money on food when they earn more. Healthy food at attractive price will therefore be the issue in focus. Production of broiler meat has increased to 4.2 million tons per annum in 2015-16. Demand for processed chicken meat has been growing by 15-20% per annum. Eggs and chicken were “agriculture products” few years ago but are considered as “food items” today. Safe food has become a priority. Besides maintaining this production efficiency, the producer has to concentrate on the nutritive values, the adulterants and contaminants of his produce. The ministry of food processing industries at the Central Govt. level and food inspection authorities at the local levels have started keeping track of eggs and chicken production in India for quality and nutrients.<sup>(1)</sup>

India and its neighboring countries are the ancestral home of the present day domestic fowl. Poultry has been in practice in India for over 5000 years. The scientific knowledge of poultry husbandry has resulted from research done within the past 50yrs.

Poultry includes several kinds of birds such as chicken, ducks, geese, turkeys & guinea fowls. Poultry keeping in India has remained largely as a cottage enterprise. But the increased demand for egg and meat has led to the farming of poultry in a more scientific way on commercial scale.

In India, a gradual progress in the marketing of poultry & eggs could be seen from the first Five year plan. Due to the introduction of high-yielding exotic breeds and more scientific

methods of poultry keeping, more number of individuals turns to poultry farming with the confidence of assured economic returns<sup>(2)</sup>. Vencobb breed is developed after 8 years of intense breeding & selection programme. The bird is adapted to tropical climate & is an early maturing breed with early peak, sustained production & better feed efficiency.<sup>(3)</sup> It enjoys 75 % market share & 2.5 billion broiler industry in India.

With the future ban on the use of antibiotics as growth promoters in animal feed & increased concerns about food safety, environmental contamination, & general health risks, the search for growth prompting & immune system- strengthening alternatives is necessary. Concurrently, animal products with a high fat content, which is a risk factor for cardiovascular diseases, are not welcomed by consumers. At present, plant extracts are being paid great attention to as feed additives by virtue of their advantage being natural <sup>(4)</sup>.

In the homoeopathic system, the medicine **Alfalfa** is indicated for the improvement of digestion & fat production which can be administered to chickens. Alfalfa has played an important role as livestock forage. Its use probably originated in Asia. The Arabians fed Alfalfa to their horses, claiming it made the animals swift & strong, & named the legume “al-fal-fa” meaning “father of all foods”.<sup>(5)</sup> Alfalfa also proved to be lowering the cholesterol content in broiler chickens. <sup>(6)</sup>

Alfalfa (*Medicago sativa*) is high-protein, high-Ca, relatively low-fiber content; also, it contains many functional components such as polysaccharides, saponins, leaves protein concentrates, and flavonoids, and it has been reported to contain a relatively large amount of tocopherol that is primarily in the alpha form. Many studies showed that alfalfa could improve the growth, and improve the feed efficiency, improve the meat quality, improve the antioxidizing action, decrease the cholesterol level in the yolk, meat, and serum. So these properties can be employed in the healthy & effective growth in chickens. <sup>(4)</sup> It has also been used in poultry to make the broiler growth faster<sup>(7)</sup>.

The national poultry day is celebrated on March 19 of every year, celebrates our “fine feathered friends”.

Facts about the national poultry day

- Poultry comes from the French/Norman word ‘poule’ itself derived from the Latin word pullus, which means small animal.

- It is believed that chicken was introduced to America by the European explorers in the 16<sup>th</sup> century. Chicken consumption in the US increased during World War II due to a shortage of beef & pork.
- Poultry is the 2<sup>nd</sup> most widely eaten meat in the world, accounting for about 30% of meat production worldwide followed by pork at 38%.
- Chickens have panoramic vision of about 300°.
- Chickens & other birds are thought to have descended from dinosaurs. <sup>(8)</sup>

#### Types of broilers <sup>(9)</sup>

- Commercial broiler breeds
- Dual purpose broiler breeds

| Commercial broiler breeds | Dual purpose broilers |
|---------------------------|-----------------------|
| ✓ <b>Caribro</b>          | ✓ Kuroiler dual       |
| ✓ <b>Babcock</b>          | ✓ Rhode island        |
| ✓ <b>Krishibro</b>        | ✓ Red vanaraja        |
| ✓ <b>Colour broiler</b>   | ✓ Gramapriya          |
| ✓ <b>Hy-bro</b>           |                       |
| ✓ <b>Vencobb</b>          |                       |

#### Breeding for meat production <sup>(2)</sup>

Exclusively for meat production should select only the rapidly growing varieties of fowls. The best variety breeds consume lesser feed to gain greater body weight. For the breeding purpose, certain criteria are taken into consideration.

- Good health and vigour.
- Rapid growth rate.
- Good fleshing on breasts and thighs.

- Well proportionate body
- Uniform body depth from front to rear.
- Fast feathering in wings & tail.

Top 10 chicken producing countries in the world <sup>(10)</sup>

| Sl no | Rank      | Country       |
|-------|-----------|---------------|
| 1.    | USA       | 18.29 million |
| 2.    | Brazil    | 13.6 million  |
| 3.    | China     | 12.7 million  |
| 4.    | India     | 4.2 million   |
| 5.    | Russia    | 3.75 million  |
| 6.    | Mexico    | 3.27 million  |
| 7.    | Argentina | 2.1 million   |
| 8.    | Turkey    | 1.9 million   |
| 9.    | Thailand  | 1.78 million  |
| 10.   | Indonesia | 1.64 Million  |

## 2. OBJECTIVES

- ✓ To assess the homoeopathic action of Alfalfa Q in chickens on the basis of the volume of feed intake.
- ✓ To assess the changes in the chickens comparing with the control.
- ✓ To assess the growth rate comparing with the control.

## 3. SCOPE OF THE STUDY

- ✓ If the research outcome proved to be successive, Alfalfa can be replaced as an effective alternative.
- ✓ Along with growth induction, it is proved to be an inducer of immunity.
- ✓ It is also proved to be improving the meat quality.

- ✓ It has also an effect in decreasing the total cholesterol & low density lipoprotein cholesterol levels & increasing the HDL level in the serum.

#### 4. NEED FOR THE STUDY

There is an urgent need in industrialized societies to develop novel products that can lower human dietary cholesterol intake. With the future ban of antibiotics as growth promoters in animal feed & increased concerns about food safety, environmental contamination, general health risks, the search for growth prompting and immune system strengthening alternatives is necessary. Concurrently, animal products with a high fat content, which is risk factor for cardiovascular diseases, are not welcomed by consumers. At present, plant extracts are being paid great attention to as feed additives by virtue of their advantage being natural.

#### 5. REVIEW OF THE LITERATURE

##### ▪ 5.1 About *Medicago sativa* (Alfalfa)

Also known as Lucerne or *Medicago sativa* <sup>(11)</sup>

| TAXONOMICAL SERIAL NO | 183623          |
|-----------------------|-----------------|
| Kingdom               | Plantae         |
| Subkingdom            | Viridiplantae   |
| Division              | Tracheophyta    |
| Class                 | Magnoliopsida   |
| Family                | Fabaceae        |
| Genus                 | Medicago        |
| Species               | Medicago sativa |

- **Madewar B P (2016). Material Medica Nosodes& Repertory of Veterinary Homoeopathy. 1<sup>st</sup> ed. Jain Publishers, p.28** mentions about the action of Alfalfa on GIT as Alfalfa favorably influences nutrition, evidenced in “toning up” the appetite & digestion. Acts as a fat producer, corrects tissue waste. Appetite & digestion improves, gain in weight. Hungry all the time, eating much more heartily than at other times. Sensation of hunger all times. Appetite is increased, sometimes ravenous; must eat frequently.<sup>(12)</sup>
- Lucerne (*Medicago sativa*) is often referred to as the queen of forages because of its ability to provide consistently high yields of high quality. Lucerne is the most widely grown forage legume in the world. It is most frequently used in conjunction with forage maize in dairy systems, because the protein of the lucerne complements the high energy maize. It is rarely grazed as a pasture crop because of the risk of bloat and possible death. It is generally harvested for hay or silage. Protein values for lucerne are also dependent upon the growth stage at which it is harvested and are generally around 200 g/kg, but have been reported to range from 129 to 324 g/kg.**Practical production of protein for food animals - Stephen A Chadd, W. Paul Davies and Jason M Koivisto<sup>(13)</sup>**
- In the book Schwabe’s **A compendium of rare & clinically established mother tinctures with index of indications** by Dr P N Varma, Dr Kusum Yadav & Dr Ramachandran Valavan pg.20-21 states that Alfalfa Q is a homoeopathic mother tincture made from the whole plant excluding roots. It is covered by homoeopathic pharmacopoeia of India. It was proved by Dr Blackwood. Hahnemannian proving was done by CCRH & published in 2005. It is one of the best sources for protein & is very high in chlorophyll, carotene, the vitamins A, D, E, B-6, K, & several digestive enzymes. Research suggests that it may inactivate dietary chemical carcinogens in the liver & small intestine before they have a chance to do the body any harm. It is very high in minerals & vitamins, particularly iron, Ca, Mg, K, trace minerals & Vit K. it also removes toxins & neutralizes acids. Researchers have found that it is useful in reducing cholesterol levels, total cholesterol & LDL cholesterol, in the blood.<sup>(14)</sup>
- **“Photochemical & pharmacological potential of Medicago sativa: a review” by Bora KS, Sharma A** reveals that Alfalfa contains phytoconstituants such as saponins, flavinoids, phytoestrogens, coumarins, alkaloids, amino acids, phytosterols, vitamins,

digestive enzymes & terpenes. Pharmacological reports revealed that it is used as neuroprotective, hypocholesterolemic, antioxidant, antiulcer, antimicrobial, hypolipidemic, estrogenic. **Journal Pharmaceutical biology, volume 49, 2011-issue 2, pages 211-220. Published online: 25 October 2010** <sup>(15)</sup>

- In Journal of Food processing & technology, a research article on the topic **“Production technology, chemical composition & use of alfalfa protein- xanthophylls concentrate as dietary supplement”** by Grela ER & Pietrzak published on Aug 30,2014, 5:10 aimed to evaluate the chemical composition of protein- xanthophyll concentrate from alfalfa manufactured in France in 2009-2012. They found that Protien-xanthophyll concentrate from alfalfa was rich in crude protein (534g/kg DM), linolenic acid (47.7g/kg DM) & minerals, especially calcium (32.9 g/kg DM) & iron (497 mg/kg DM) <sup>(16)</sup>

## 5.2 About the study of Alfalfa extracts or components in broilers.

- In the study of **“Effect of polysavone (alfalfa extract) on abdominal fatdeposition and immunity in broilerchickens”** by XF Dong, WW Gao, JM Tong, HQ Jia, RN Sa, Q Zhang states that when two hundred 1 day old commercial broiler birds were studied as control group & a polysavone group, polysavone improved the relative thymus and spleen weights. At 4 & 6<sup>th</sup> week of age, the proliferation of T & B lymphocytes in the polysavone group was significantly greater. **Published in poultry science, volume 86, issue 9, September 2007, <https://doi.org/10.1093/ps/86.9.1955>**<sup>(17)</sup>
- **A study on the effects of dietary polysavone (Alfalfa extract) and chlortetracycline supplementation on antioxidation and meat quality in broiler chickens** by XF Dong, WW Gao, JL Su, JM Tong, Q Zhang studied with a total of 360 1-day old broiler chickens to evaluate the dietary effects of polysavone.
  - Over the 6-week study, feed intake increased significantly with CTC supplementation and final body weight (BW) was significantly higher for polysavonic and CTC treatments. Feed: gain ratio was not significantly affected by dietary treatments.

- It was indicated that polysavone modules antioxidation and modifies meat quality, but with no adverse effect on performance of broiler chickens, and that CTC can be beneficial to performance but has no beneficial effects on antioxidant function or meat quality. **Published in British poultry science 52(3), 302-309, 2011.**<sup>(18)</sup>
  
- A study on the **Effects of alfalfa flavinoids on broiler performance, meat quality, and gene expression** by Kehui Ouyang, Mingsheng Xu, Yan Jiang, Wenjun Wang showed that AF inclusion in the diet enhanced the body weight at 42d of age & the average daily gain from 0 to 42d, decreased the total cholesterol& low density lipoprotein cholesterol levels & increased HDL level in the serum, enhanced the superoxide dismutase, catalase, total antioxidant capacity & glutathione peroxidase & decreased the malondialdehyde concentration in the serum.  
 The results indicated that AF were found to be effective for average daily gain & breast percentage promoting, meat quality & antioxidant activity improvement via upregulating the LPL,ATGL, PPAR $\gamma$ , & downregulating the FAS expression in adipose & liver tissues.  
**published in Canadian Journal of Animal Science 96(3), 331-340, March 2016.**<sup>(19)</sup>
  
- **Studies on effects of adding Alfalfa grass meal with high trace elements on growth and feed conversion efficiency of chicks** by GUO Xiao et al (Zhengzhou College of animal husbandary engineering, Zhengzhou, Henan 450011). This study aimed to discuss effects of adding alfalfa meal with high trace elements on growth & metabolism of chicks and seek for its optimum adding amount. The 60 healthy 35-day-old Sanhuang chicks were selected & comparative trials on 4 kinds of Alfalfa grass meal with high trace elements such as high se, high se-cobalt, high se-cobalt-zinc, & high se-cobalt-zinc-iron added to the diet of chicks were made to study the effects of 4 kinds of alfalfa grass meals on the growth & feed conversion efficiency of chicks.  
 Adding 4 kinds of Alfalfa meals with high trace elements could increase the body weight & feed conversion efficiency. Among them, adding 105 Alfalfa meal with high selenium-cobalt-zinc got the best effects on the growth & metabolism of chicks, which could increase the body weight of chicks by 150.0%, being 181.2% higher than that of CK, & make the ratio of forage to meat as 10.95, being 54.0% lower than that of CK.

So it was concluded that adding 10% Alfalfa meal with high Selenium- cobalt-Zinc in the diet of Sanhuang chicks could get the best effects, with good growth of chicks & high feed conversion efficiency. **Journal of Anhui Agricultural sciences 2008-15**<sup>(20)</sup>

- **The effect of a protein-xanthophyll concentrate from Alfalfa ( phytobiotic) on animal production-a current review by Eliza Gawel, Mieczyslaw Grzelak in Annals of Animal science Volume 12, No. 3(2012) pg 281-289** says that One of the supplements that can replace antibiotic growth promoters is a protein xanthophyll extract from the leaves of Alfalfa. Green matter of Alfalfa contains 17-22% of total protein, rich in non-essential (exogenous) amino acids, saturated, monosaturated & polysaturated fatty acids, vitamins, minerals & organic acids. The PX extract contains secondary metabolites such as plant phytoestrogens (isoflavones & coumestrol) & antinutritional components (phytates, L-canavanine & saponins). PX concentrate as a natural feed supplement has a positive effect on animal organisms. When supplemented to animals, this enhanced production results, increased feed efficiency, & improved the quality of meat, milk & eggs. Also PX reduced methane emissions & soil pollution with nitrogen compounds when used in animal nutrition. <sup>(21)</sup>
- **An article in “Organic Agriculture” How does feeding organic broilers high levels of Alfalfa silage affect the meat quality? by Salome Carrasco** aimed to evaluate the effect of young harvested alfalfa silage as a protein source in the diet of organic broilers on the meat quality. It was found that high levels of silage consumption and consequently high ratios of alfalfa/fat in the diets of groups were related to the low content of cholesterol in the meat. <sup>(22)</sup>
- **“Alfalfa (Medicago sativa) meal in low energy diets of organic broiler production” by Carrasco L. S. and Bellof G.** studied with organic diets with low energy and amino acid contents with positive effects on growth & carcass performance of broilers. Alfalfa was able to produce healthy broiler meat (low fat & cholesterol) with a special flavor (Ponte *et al.*, 2004). They concluded that high levels of alfalfa in diets of slow-growing broilers are possible. Further research on whether the fiber level of alfalfa is the main factor for impact growth and meat quality is necessary. <sup>(23)</sup>
- **“Feeding Alfalfa to Poultry” written by Dr Jacquie Jacob, University of Kentucky, May 05, 2015** says that Alfalfa is, however a natural source of xanthophylls, which are

the pigments that give the yellow color to chicken skin & egg yolks. It has been reported that using molting diets high in Alfalfa reduces the level of Salmonella excreted in the feces of hens. Dietary fiber is used by Lactobacillus & Bifidobacteria species resulting in production of lactic acid & short chain fatty acids. Production of these acids reduces the pH in the intestines, helping the body maintain the normal collection of microorganisms in the digestive tract, & thereby, helping prevent the establishment of Salmonella & other pathogens. At the same time, however, dietary fiber reduces the speed with which feed passes through the digestive tract. <sup>(24)</sup>

- **“Effect of different proportions of Lucerne meal in broiler chicken”** by Jana Tkáčová, Mária Angelovičová, Ľubica Mrázová, Martin Kliment, Martin Král experimented with 2 groups of broiler chickens with 100 in each group. The research was to find the efficiency of Lucerne meal with proportion 2% & 6% in feed mixtures. The broilers body weight was increased 1738.4 g in group with proportion of Lucerne meal 2% in feed mixtures. The proportion of proportion 6% Lucerne meal in feed mixture decreased a body weight of the broiler chickens on level 1552.8g. The differences of body weight between groups were statistically significant. ( $P < 0.05$ ). Lucerne meal contains fiber, which increases the overall percentage of fiber in the compound, resulting in worse feed utilization. <sup>(25)</sup>
- A review on **“Feeding forage in poultry: A promising alternative for the future of production systems”** by Vincenzo Tufarelli, Marco Ragni & Vito Laudadio. Hens reared on alfalfa or clover need significantly less feed protein than confined hens. In particular alfalfa forage can supply carotene, vitamins & other nutrients, especially high amount of protein up to 19% as dry matter basis. Pg 5 of 10  
 It was assessed that poultry products from grass fed flocks tend to have less total cholesterol & more vitamins A & E, as well as high omega 3, and an improved omega 3 to omega 6 ratios. It was found that egg cholesterol decreased as alfalfa meal increased in laying hen diet. **Published in Agriculture 2018, 8, 81.** <sup>(26)</sup>
- A research note on **“Cholesterol levels & sensory characteristics of meat from broilers consuming moderate to high levels of Alfalfa** by P. I. P. Ponte, I. Mendes, + Mendes, M. Quaresma, M. N. M. Aguiar, J. P. C. Lemos, L. M. A. Ferreira, M. A. C. Soares, C. M. Alfaia, J. A. M Prates, & C. M. G. A. Fontes. Owing to the urgent

need in industrialized societies to develop novel products that can lower human dietary cholesterol intake. Dehydrated Alfalfa is a good source of hypocholesterolemic compounds such as saponins. The result shows that it was possible to produce chicken breast meat with reduced cholesterol content. In addition, total lipids in chicken meat were significantly decreased when a higher level of restriction was applied. The result suggests that it was possible to develop novel broiler production systems that will produce leaner meat that is acceptable to consumers & has a reduced cholesterol content.

**Published in 2004 Poultry science 83:810-814<sup>(27)</sup>**

- An article on **“Fast growing chickens fed with Lucerne protein-xanthophyll concentrate: growth performance, slaughter yield & bone quality”** by K. Kwiatkowska, M.Kwiecien & A. Winiaeska-Mieczan published in **Journal of Animal & feed Sciences**, 26, 2017, 131-140 studied with 150 broiler chickens. The soyabean meal in the experimental diets was replaced with LPC. The results shows that the LPC doses increased chicken body weight on day 21 of rearing, reduced the mortality rate by 50%, increased pectoral muscle weight & reduced the content of abdominal fat by 42.5% & 51.5% respectively. The greatest length & the largest largest circumference of tibia & the highest values of the secondary moment of inertia (Ix) and mean relative wall thickness (MRWT) of femur and tibia were noted in the LPC-treated chickens. The obtained results indicate that the LPC supplementation enhanced bone mechanical strength resulting from the increase in the geometric parameters (Ix and MRWT) as well as cortical layer thickness. The bones were characterized by higher flexibility and breaking strength. The increasing content of Ca and Zn and the higher value of the bone density index indicating normal bone mineralization.<sup>(28)</sup>
- An article on **“Effect of Lucerne meal on broiler chickens cecum”** by Jana Tkáčová, Maria Angelovičová experimented with Cobb 500 type broiler chickens. Animals were divided into 2 groups with 100 broilers in each group. Study focused on the effect on growth rate as well as microbiological colonization of intestine. The 4% Lucerne meal additive in feed mixture did not affect an average body weight. <sup>(29)</sup>
- A study by Jana Tkáčová, Peter Haščik, Mária Angelovičová, Adriana Pavelková, Marek Bobko Published in **Potravinarstvo**, vol.9, 2015, no.1, p.055-555 scientific

journal of food industry investigated the effect of feed mixtures with proportion of Alfalfa meal 4% on body weight of broiler chickens, fat content, their meat & oxidative stability meat far under storage conditions. Final hybrid Cobb 500 was used. The average weight of chickens at the end at the end in the control group was 1685.6 g. in experimental group weighed 1709.6 g. The average fat content in chicken meat was lower in the group with a share of 4 % alfalfa meal compared to control group. The study says that Alfalfa has biologically active sub that are effective for the promotion of health & also improves the nutritional value & technological properties of the poultry food, when is used in feed mixtures. <sup>(30)</sup>

## 6. RESEARCH METHODOLOGY

### MATERIALS REQUIRED

1. Vencobb variety of chickens
2. Cage for housing with spacing of 1 sq.ft per bird.
3. Litter
4. Provision for water, manual drinkers
5. Godrej agrovet feed, Circular feeders for feed.
6. Alfalfa Q
7. Digital hanging weighing machine

#### 6.1 Breed:Vencobb

A sample of 18 chicks were selected which were divided into 2 groups each of 9 in number.



Control group with 9 chicks.



Experimental group with 9 chicks.

### 6.3 Environment & housing

- Requirements of good housing
- Good ventilation
- East to west direction along the axis of the house for natural light & sun rays.

The cage was located at a comfortable, easy to clean & manage, providing sufficient area of comfort to the bird.



View of Both the groups in the same Cage

**Cage:** Size 1sq. feet for each bird.

Temperature, position of cage was in east west direction, day light, watering were desirable.

The chicks were caged in a way that they are separated by means of central partition within the same cage.

**Floor:** Floor of the house/ cage is littered with straw, dry leaves, etc.

The litter must be dry to avoid infections. It is occasionally stirred to mix droppings of the bird.



#### 6.4 Feed:Godrej Agrovvet



Starter feed up to 22<sup>nd</sup> day, i.e. up to the 1<sup>st</sup> week of the study followed by finisher feed was given.

#### COMPOSITION OF FEED

Balanced mash formula for broilers

| Materials/ ingredients | Weight (in g) |
|------------------------|---------------|
| Cereals                | 20            |
| Rice polish            | 28            |
| Barley/ oats           | 7             |
| Wheat barn             | 7             |
| Groundnut cake         | 20            |
| Corn meal              | 5             |

|                          |      |
|--------------------------|------|
| <b>Steamed fish meal</b> | 7    |
| <b>Steamed meat meal</b> | 3    |
| <b>Steamed bone meal</b> | 1    |
| <b>Calcium</b>           | 1.5  |
| <b>Common salt</b>       | 0.5  |
| <b>TOTAL</b>             | 100g |

### SELECTION OF BREED

Vencobb variety of broiler chickens (18 no's) was collected from Mathy, Marthandam on 3<sup>rd</sup> March 2019 at 8:30 am. Each of them was weighed and sorted into Control group & Experimental group.

### TAGGING

Each bird in both groups was tagged to note the individual weight gain & activity. The chicks were given color codes such as Ash, White, Green, Orange, Pink, Blue, Red, Violet, and Black.



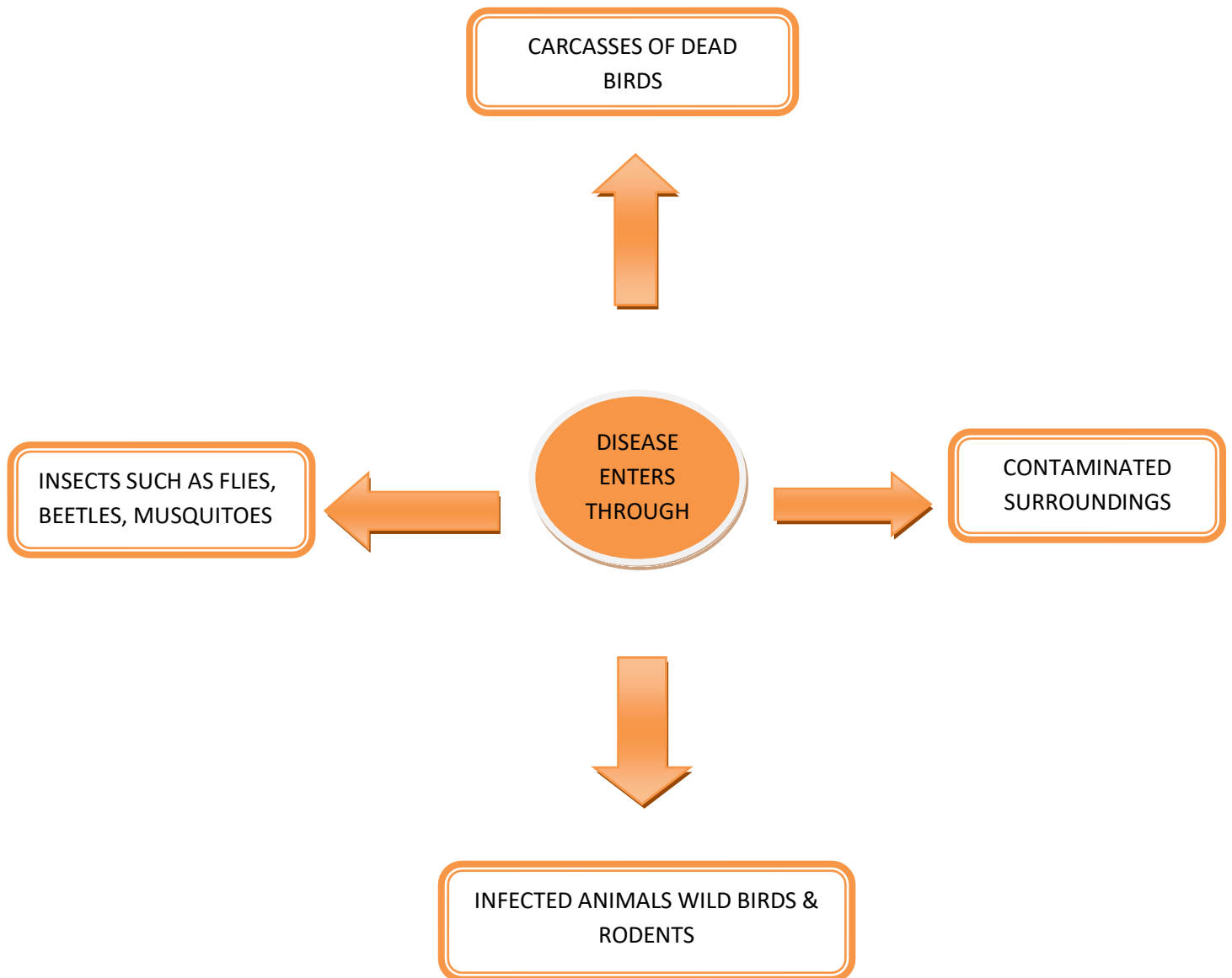
**Medicine:** ALFALFA Q (WILMAR SCHWABE)

### ADMINISTRATION OF MEDICINE

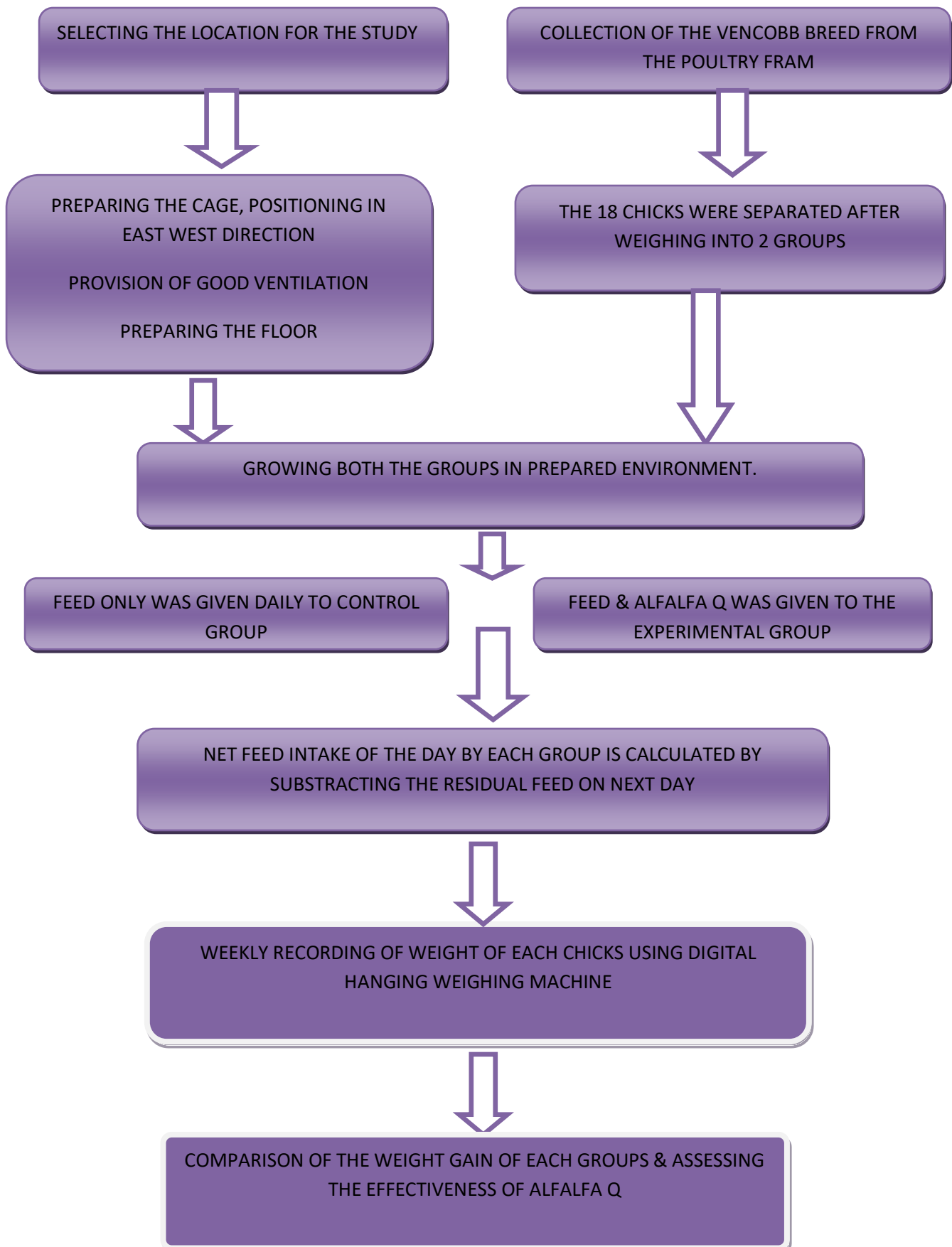
Alfalfa Q was administered in water in a rate of 5 drops per chick in the experimental group daily morning & evening for 4 continuous days & repeated in an interval of 4 days.



## MANAGEMENT TO AVOID DISEASE SPREAD<sup>(9)</sup>



## FLOWCHART



## 6. OBSERVATION & RESULTS

Initial weight of each bird at the commencement of the study is noted.

### MARCH 3

| TAG COLOUR | EXPERIMENTAL GROUP (KG) | CONTROL GROUP(KG) |
|------------|-------------------------|-------------------|
| White      | 0.385                   | 0.395             |
| Pink       | 0.395                   | 0.330             |
| Blue       | 0.405                   | 0.345             |
| Green      | 0.370                   | 0.395             |
| Violet     | 0.330                   | 0.370             |
| Black      | 0.360                   | 0.320             |
| Red        | 0.375                   | 0.315             |
| Orange     | 0.340                   | 0.375             |
| Ash        | 0.310                   | 0.395             |
| TOTAL      | 3.270 kg                | 3.250 kg          |

Based on the estimated feed consumption, the feed (starter) was given to each group daily morning at 8:00 am.

Individual weight gain was noted after 1 week on **10 MARCH**, 7:00 am using digital hanging weighing machine.



| TAG COLOUR                                                                                                                            | EXPERIMENTAL GROUP(KG)  | CONTROL GROUP(KG)  |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------|
| White                                                                                                                                 | 0.685                   | —                  |
| Pink                                                                                                                                  | 0.955                   | 0.765              |
| Blue                                                                                                                                  | 0.790                   | 0.830              |
| Green                                                                                                                                 | 0.830                   | 0.675              |
| Violet                                                                                                                                | 0.875                   | 0.835              |
| Black                                                                                                                                 | 0.765                   | 0.630              |
| Red                                                                                                                                   | 0.880                   | 0.905              |
| Orange                                                                                                                                | 0.920                   | 0.685              |
| Ash                                                                                                                                   | 0.980                   | 0.880              |
| <b>TOTAL</b>                                                                                                                          | <b>5.185 kg</b>         | <b>4.550 kg</b>    |
| <p>Finisher feed was given from the 3<sup>rd</sup> week of its life cycle for the maximum feed conversion.</p> <p><b>MARCH 17</b></p> |                         |                    |
| Tag Colour                                                                                                                            | Experimental group (kg) | Control group (kg) |
| White                                                                                                                                 | 0.900                   | —                  |
| Pink                                                                                                                                  | 1.310                   | 0.810              |
| Blue                                                                                                                                  | 1.030                   | 1.305              |
| Green                                                                                                                                 | 1.085                   | 0.865              |

|               |                 |                 |
|---------------|-----------------|-----------------|
| <b>Violet</b> | 1.320           | 1.235           |
| <b>Black</b>  | —               | 1.020           |
| <b>Red</b>    | 1.260           | 1.305           |
| <b>Orange</b> | 1.290           | 1.055           |
| <b>Ash</b>    | 1.260           | 1.220           |
| <b>TOTAL</b>  | <b>9.460 kg</b> | <b>8.815 kg</b> |

**MARCH 24**

| <b>TAG COLOUR</b> | <b>EXPERIMENTAL GROUP(KG)</b> | <b>CONTROL GROUP(KG)</b> |
|-------------------|-------------------------------|--------------------------|
| <b>White</b>      | 1.190                         | —                        |
| <b>Pink</b>       | 1.590                         | 1.495                    |
| <b>Blue</b>       | 1.350                         | 1.570                    |
| <b>Green</b>      | 1.370                         | 1.320                    |
| <b>Violet</b>     | 1.620                         | 1.485                    |
| <b>Black</b>      | —                             | 1.260                    |
| <b>Red</b>        | 1.560                         | 1.485                    |
| <b>Orange</b>     | 1.585                         | 1.340                    |
| <b>Ash</b>        | 1.500                         | 1.495                    |
| <b>TOTAL</b>      | <b>11.765 kg</b>              | <b>11.450 kg</b>         |

**MARCH 31**

| TAG COLOUR   | EXPERIMENTAL GROUP (KG) | CONTROL GROUP (KG) |
|--------------|-------------------------|--------------------|
| White        | 1.710                   | —                  |
| Pink         | 2.040                   | 1.905              |
| Blue         | 2.030                   | 2.250              |
| Green        | 1.735                   | 1.560              |
| Violet       | —                       | 1.785              |
| Black        | —                       | —                  |
| Red          | 2.095                   | 1.810              |
| Orange       | 1.915                   | 1.790              |
| Ash          | 2.065                   | 1.805              |
| <b>TOTAL</b> | <b>13.590 kg</b>        | <b>12.905 kg</b>   |

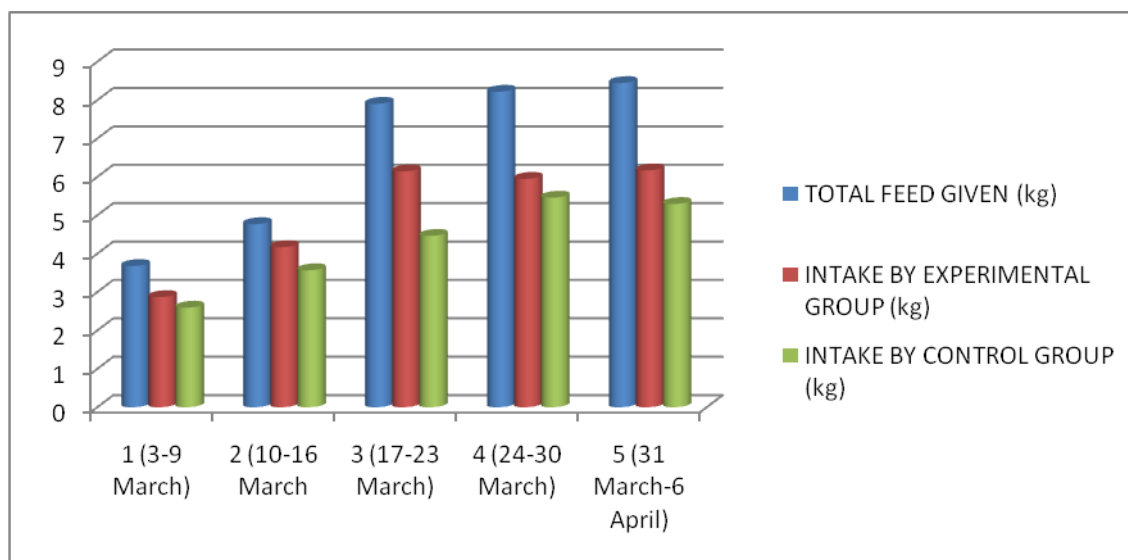
**APRIL 7**

| TAG COLOUR | EXPERIMENTAL GROUP(KG) | CONTROL GROUP (KG) |
|------------|------------------------|--------------------|
| White      | 2.475                  | —                  |
| Pink       | 2.920                  | 2.325              |
| Blue       | 3.085                  | 2.715              |

|               |                  |                  |
|---------------|------------------|------------------|
| <b>Green</b>  | 2.725            | –                |
| <b>Violet</b> | –                | 2.325            |
| <b>Black</b>  | –                | 2.865            |
| <b>Red</b>    | 2.945            | 2.255            |
| <b>Orange</b> | 2.420            | 2.450            |
| <b>Ash</b>    | 2.895            | 2.385            |
| <b>TOTAL</b>  | <b>19.645 kg</b> | <b>17.320 kg</b> |

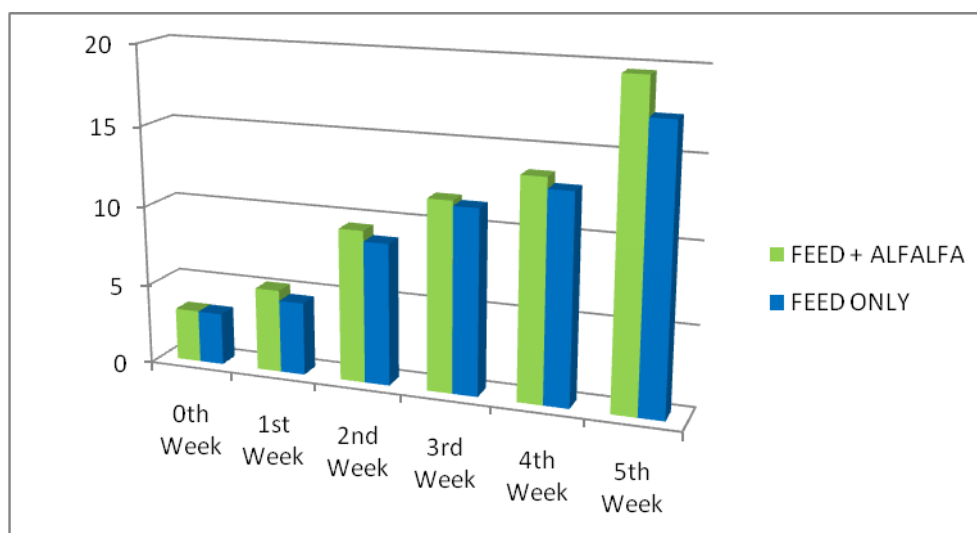
#### **TOTAL FEED INTAKE BY EACH GROUP PER WEEK**

| <b>WEEK</b>          | <b>TOTAL FEED GIVEN<br/>(kg)</b> | <b>INTAKE BY<br/>EXPERIMENTAL GROUP<br/>(kg)</b> | <b>INTAKE BY<br/>CONTROL GROUP<br/>(kg)</b> |
|----------------------|----------------------------------|--------------------------------------------------|---------------------------------------------|
| 1 (3-9 March)        | 3.680                            | 2.870                                            | 2.595                                       |
| 2 (10-16 March)      | 4.770                            | 4.170                                            | 3.570                                       |
| 3(17-23 March)       | 7.905                            | 6.145                                            | 4.465                                       |
| 4(24-30 March)       | 8.220                            | 5.950                                            | 5.460                                       |
| 5 (31 March-6 April) | 8.445                            | 6.170                                            | 5.295                                       |



### COMPARISON OF THE TOTAL WEIGHT OF EACH GROUP PER WEEK

| WEEK                 | WEIGHT GAIN BY EXPERIMENTAL GROUP (kg) | WEIGHT GAIN BY CONTROL GROUP (kg) |
|----------------------|----------------------------------------|-----------------------------------|
| 0 <sup>th</sup> week | 3.270                                  | 3.250                             |
| 1 <sup>st</sup> week | 5.185                                  | 4.550                             |
| 2 <sup>nd</sup> week | 9.460                                  | 8.815                             |
| 3 <sup>rd</sup> week | 11.765                                 | 11.450                            |
| 4 <sup>th</sup> week | 13.590                                 | 12.905                            |
| 5 <sup>th</sup> week | 19.645                                 | 17.320                            |



## 7. DISCUSSION

From this study, it is observed that the Alfalfa (*Medicago sativa*) is found to be an effective alternative to increase the weight gain of Vencobb variety of broilers. The outcome of the study explains that by the administration of Alfalfa Q, there was a difference in the feed intake as well as the weight gain of the chickens. The total weight gain of the control group was 17.320 kg & that of the experimental group was 19.645 kg. Thus the average weight gained by the control group was 2.474 kg & that of experimental group to be 2.806 kg.

The usage of alfalfa rather than the modern day steroids is an efficient alternative. This because by the administration of steroids its harmful effects are found not only in the body of the chicken but also in the body of the human who consume them. With the possibility of future ban of antibiotics, alfalfa can show a remarkable action in strengthening the immune system.

But, alfalfa reduces the total cholesterol and low density lipoprotein cholesterol levels and increases the high density cholesterol levels in the serum. Thus, reducing the risk of cardiovascular diseases. Also, it enhances the meat quality and promotes the taste of the

chicken by delaying the oxidative processes in the meat and poultry products. Thus, it proves profitable for the farmers and healthier for the consumers.

The high protein content of alfalfa, makes it a suitable substituent for the usual poultry forages. Its easy availability and feasible prize makes it more convenient for the farmer's use.

## **8. CONCLUSION**

Veterinary homoeopathy is a developing area of research like agrohomoepathy. This study throws light to the effectiveness of alfalfa Q in increasing the weight in chickens. In humans, Alfalfa favourably influences nutrition, evidenced in toning up the appetite and digestion resulting in greatly improved mental and physical vigour with gain in weight. Simiarly in chicken, it has proved to cause weight gain and also increase the feed intake. India is one among the largest chicken producing countries, the administration of alfalfa can cause a hike in the poultry market and thereby results in being economical to the farmers.

## **9. SUMMARY**

By this study, the homoeopathic medicine Alfalfa Q has been found to be effective enhancing the weight gain of the broiler chickens by making their feed intake high due to its action on the GIT.

The study was performed with a control & experiment group only. More group could be made employed to note the effective way of administration & repetition of the dosage.

Other varieties of broiler breeds can also be subjected to the study further to note the most effective response.

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