



Novel Approach to Farm Productivity

Fly Control and Food Safety

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Presentation Plan

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Food safety, fly menace and their relationship

2

Life cycle of a fly, causes of fly menace, ammonia production

3

Conventional approach and food safety concerns

4

Ayurved's solution with scientific validations

5

Triad of profitability, conclusion

Theme of World health day 2015

- “Food Safety : from farm to plate (and everywhere in between)”

Food safety is a scientific discipline describing

- **Production**
- Handling
- Preparation
- Storage



Why we require food safety?



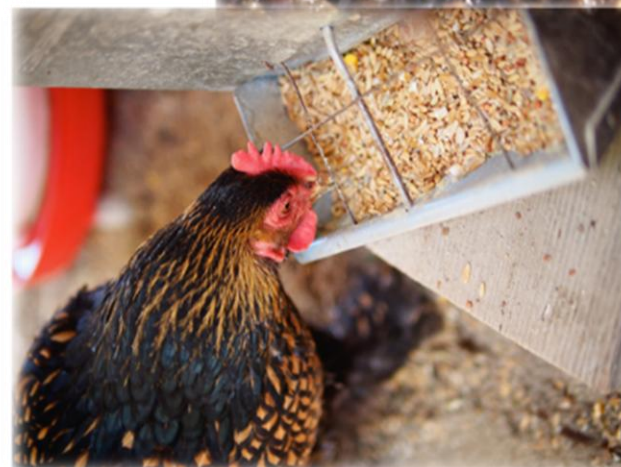
- Use of dangerous chemicals / Feed additives in chicken production - It may appear in our food (meat or eggs)
- Wrong use of antibiotics (For growth promotion) - bacteria can be resistant and difficult to treat
- Continuously use of chemicals like cypermethrin, butox or cyromazine - fly resistance - use of higher doses
- Nevertheless, using more fly control chemicals will give residues in meat and egg

Problem of Fly menace??

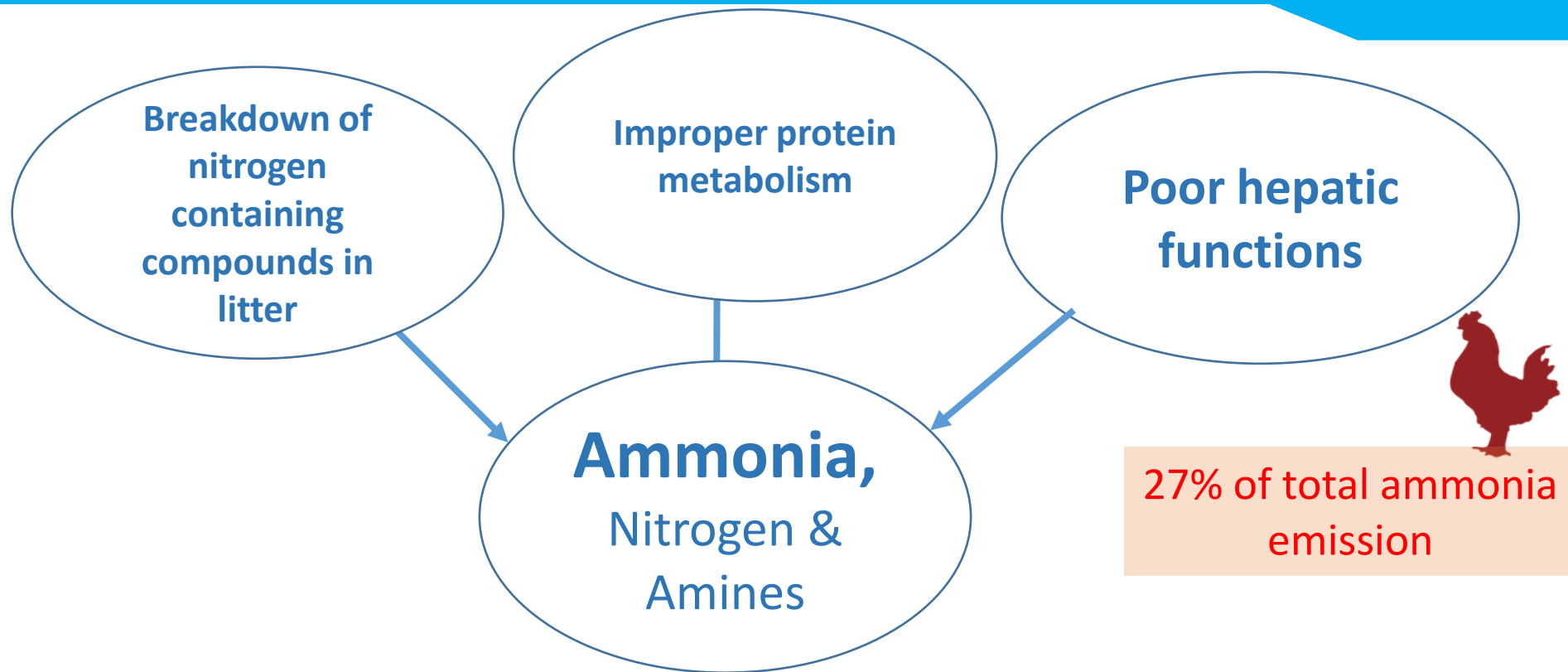
- Hot and Humid condition
- Wet droppings
- Wet feed
- Poor ventilation
- Lack of hygienic measures
- Poor management

If bird will not handle protein (nitrogen) well, it will come in dropping as Ammonia Which attracts Flies

Musca is the main fly causing fly menace in Malaysia



Ammonia production and fly menace



Flies are attracted to the smell of compounds containing Ammonia, Nitrogen, and Amines which are produced in the farm and the flies can smell it from distance

Fly menace and food safety

- Transmits >100 human and animal diseases
- Use of insecticides to control flies will directly challenge food safety by having residual effect in meat and eggs
- Resistance development will lead to higher dose
- A number of chemicals to control flies increases the threat of food safety



Public health concerns

What strategy can be taken to control flies??

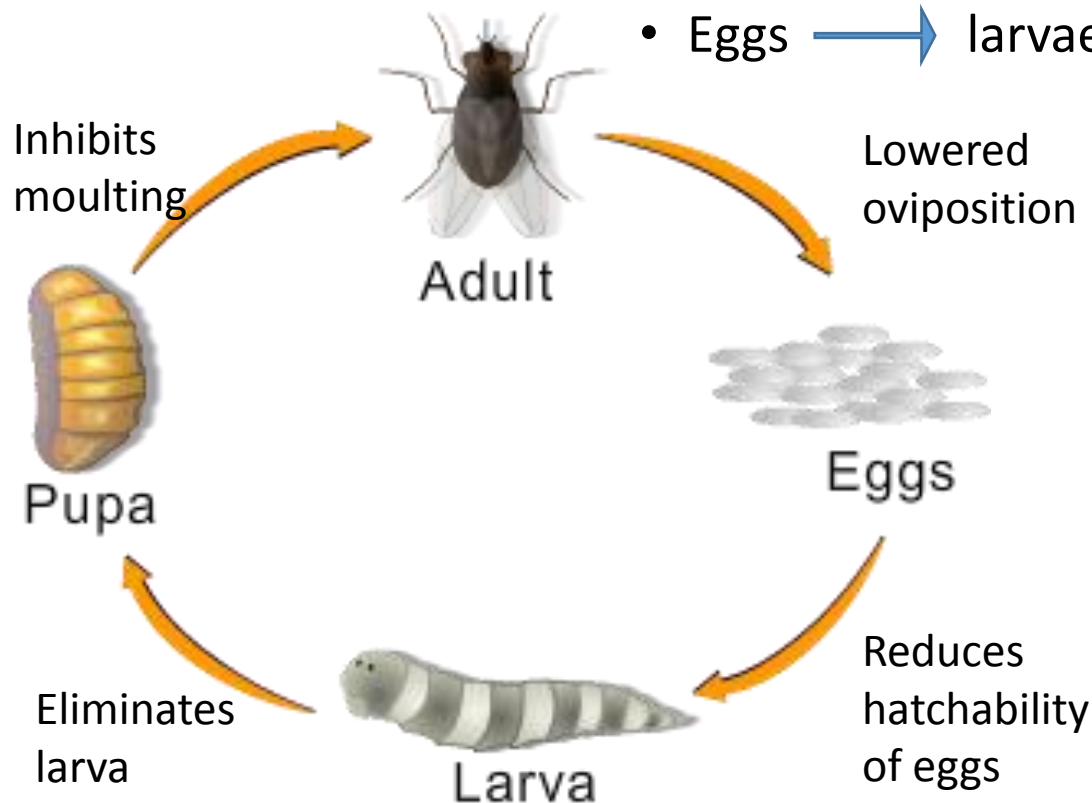
- Increase retention of Nitrogen in the birds and break the life cycle of flies in the farm Naturally – Not by use of poisons.
- Lesser is the ammonia production, least are the chances of fly menace
- Lesser is the fly menace least is the use of harmful chemicals
- Least is their use least is their presence in food items i.e. “food safety”

Natural breakdown of life cycle

Reduce ammonia concentration

Life cycle of a fly

- Various lifecycle stages: egg, larva, pupa, adult
- Carry organisms associated with food poisoning
- Eggs → larvae (maggots) in 12 to 24 hours



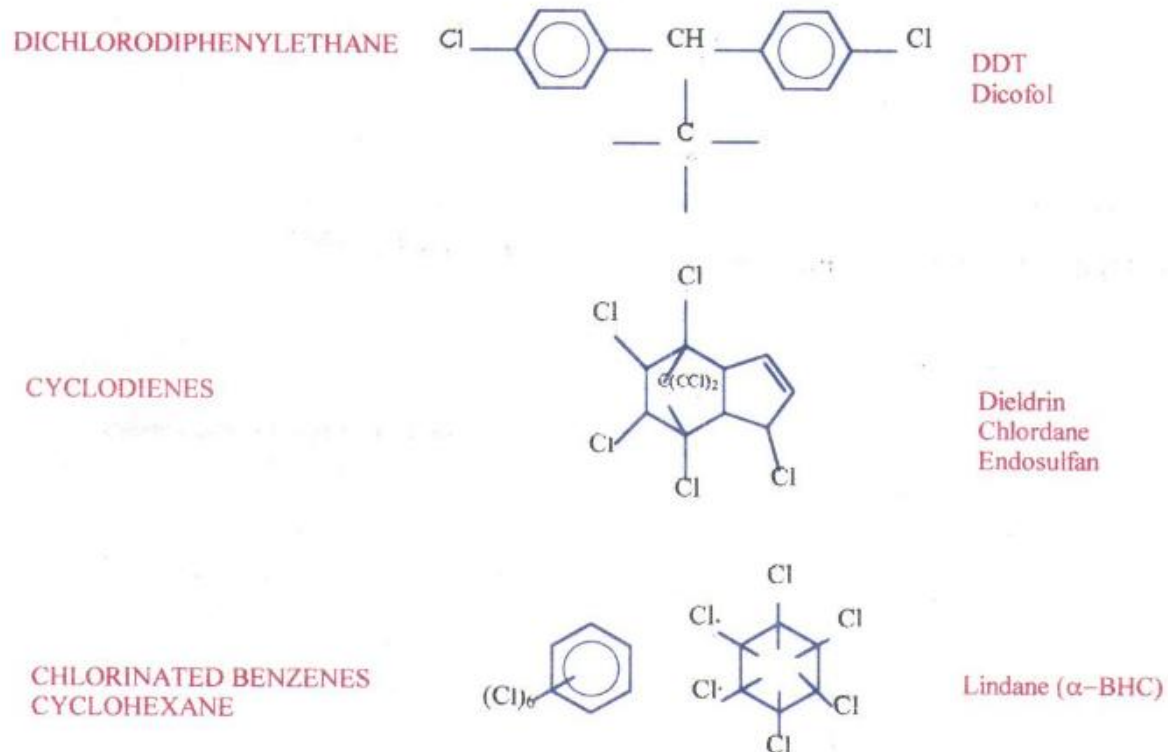
Conventional approach

- Insecticides and Pesticides
- Major group of chemicals used are
 1. Organochlorines
 2. Organophosphates
 3. Synthetic Pyrethroids
 4. Substituted Melamine (Cyromazine)
 5. Botanical pyrethrins
 6. Carbamates
 7. Sodium Borate
- Integrated pest management (IPM) programs

Organochlorines

- Resistance development
- Residue in food
- Initial euphoria with auditory or Visual hallucinations and Perceptual disturbances

Figure 1: Structural Classification of Organochlorine Insecticides



Organophosphates

- OPs are nerve poisons
- 1854-introduced
- Acutely toxic
- Resistance development
- Red List substances:
1989(UK)

Psychiatric effects

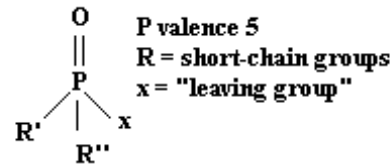
Cardiac effects

Teratogenicity

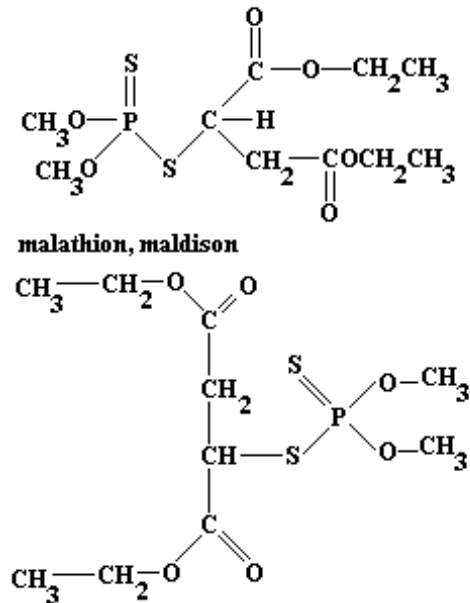
Cancer

Eye defects

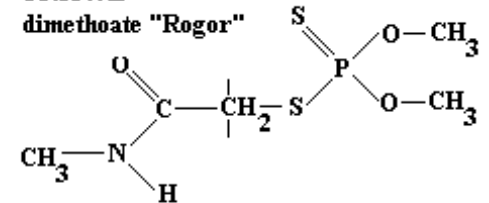
16.13.4.3 Organophosphorus insecticides



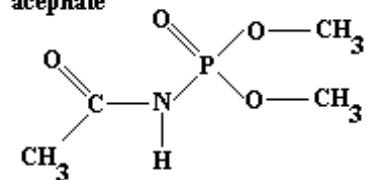
16.13.4.3 malathion, maldison, mercaptothion



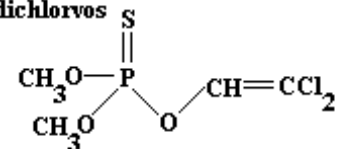
16.13.4.2 dimethoate "Rogor"



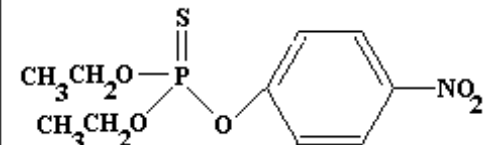
16.13.4.1 acephate



dichlorvos



parathion

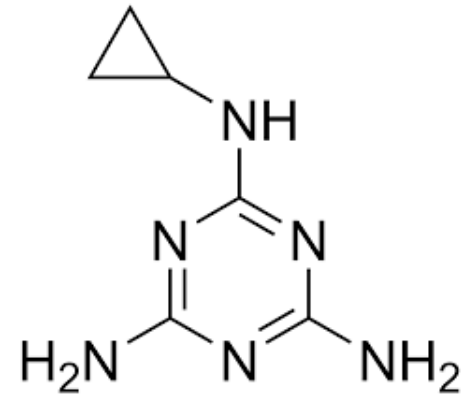


Cyromazine

Affecting the nervous system of the immature larval stages

Long term application leads to development of resistance.

Improper timing and indiscriminate insecticide use



Consequences of conventional approach

- Challenged Food safety
- Harmful and illegal residues in meat and eggs
- Resistance development
- Destruction of biological control agents
- Loss of hard earned money
- Chances of misuse or improper handling
- Take a pledge.. “say no to such chemicals”



Ayurvedet's solution: Beyond chemicals



A novel approach using polyherbal formulations

**Polyherbal Liver
Tonic**

**Acts as growth promoter and helps in Nutrient
Retention(Retains up to 31% more nitrogen in
body of birds)**



**Safer and Better
Production**

**Polyherbal Fly
Control Formula**

**Breaks the Life Cycle and Acts as fly repellent in
Farm**

Ayurvedet's solution: Beyond chemicals



- A novel approach using polyherbal formulations

“Triad of profitability”

Farm productivity

- Polyherbal solution to ensure food safety

Fly control

Food safety

- **Fly control**: No flies at the farm will lead to increased and safe production
- **Food safety**: Reduced chances of unsafe meat and egg
- **Farm productivity**: Increased production and profits of farmer

Advantages of polyherbal therapy:

- No Residual Effect
- No Resistance Development
- No Side Effects
- No Toxicity
- Safety First



Scientific Validations

Fly Control Herbal

Publications

4

Trial Reports

4

Thesis

-

Liver Tonic Herbal

Publications

30

Trial Reports

13

Thesis

10

International Trial

“Efficacy of the Herbal Fly Repellent Product (AV/FRC/18) to control *Musca domestica* Populations in Poultry Egg layer Facilities”



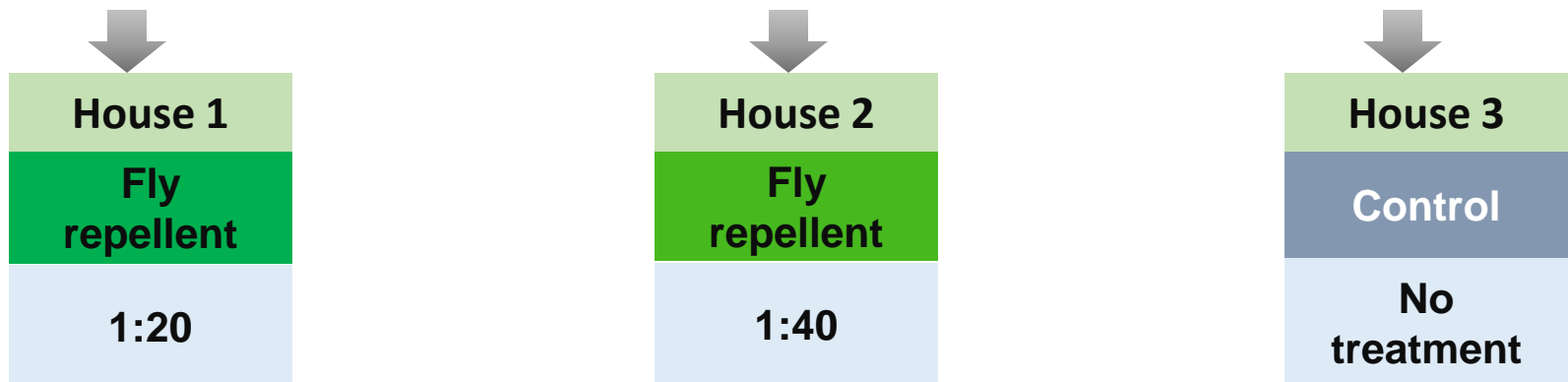
Ralph E. Williams, PhD Department of Entomology
Purdue University West Lafayette, Indiana, **USA**

Group Design

- 3 egg layer houses – 3000 egg layer chicken – no insecticide used since last 15 days



3 houses



Similar managemental condition, feed & water administration

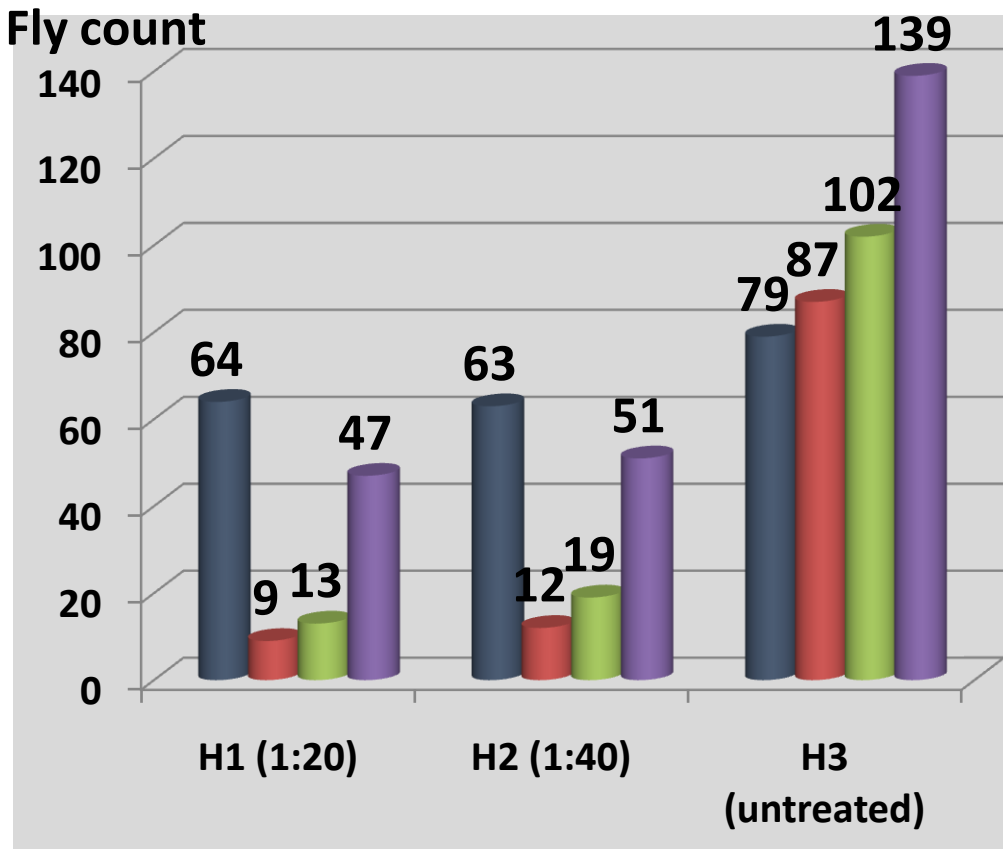
Fly count by fly tapes (T1 and T2) at 1 hour, 1 day and 2 day post application

Results

	Pre treatment	Post treatment		
		1 Hour	Day 1	Day 2
House 1	64	9	13	47
House 2	63	12	19	51
House 3	79	87	102	139

The fly count reduced by 85.9 %
immediately post treatment

Results



- Day 0 pre treatment
- 1 hr post treatment
- Day 1 post treatment
- Day 2 post treatment

FLY REPELLENT Liquid is equally effective as fly repellent

Since the fly count started to increase after day 2 application, 2-3 applications of FLY REPELLENT Liquid are recommended per week

Fly tapes



BEFORE TREATMENT

AFTER TREATMENT

Because we care

“FLY REPELLENT-LIVER TONIC-FOOD SAFETY” association

- **FLY REPELLENT:** Herbal fly control agent: counter the flies attack
- **LIVER TONIC:** Liver formulation: Controlling ammonia levels
- **Food safety:** no more fly borne infections
 - : no more toxic residue in meat and egg
 - : no overuse of different insecticides

Dosage

FLY REPELLENT



LIVER TONIC



As spray,
@200ml conc. /1000 m²
Spray in 1:20 dilution
Apply
3 – 3 times a week in first week
2 – 2 times a week in second week
1 - Once a week from 3rd week

LIVER TONIC premix: 500g per ton of feed

LIVER TONIC Liquid: (per day per 100 birds)

5ml	Chicks
10ml	Growers
20ml	Layers/Broiler finisher

Conclusion

- Fly menace is an important reason for **food safety** challenges
- Excess **ammonia production** in a farm is a key factor to attract flies
- **Herbals** can be an excellent fly repellent to counter fly menace
- **Protein metabolism** and **liver function** in a bird should be in tune to check nitrogen metabolism
- **Herbal liver tonics** enhances liver functions naturally and reduces ammonia and nitrogen production by improving liver functions
- The combination strategy **ensures proper food safety** for human community and **fly control** at poultry farms.

Queries welcomed!!

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Thank you