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Birds as Pests of Stored Grain and Their Management

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Introduction

Birds are among the most adaptive creatures on Earth, belonging to the class *Aves* and phylum *Chordata*. While they play vital ecological roles, certain bird species have become persistent pests in agricultural and storage systems. Since the advent of organized agriculture, birds have posed significant challenges to farmers by damaging crops, consuming grains, and contaminating stored produce. Estimates indicate that birds can cause up to 25–75% losses in key crops such as maize, wheat, and fruits like cherries and grapes (Goswami *et al.*, 2024).

In storage facilities, bird pests damage grains by pecking holes, causing spillage, and collapsing stacks of stored bags. Birds like crows, pigeons, and sparrows also act as carriers of diseases such as histoplasmosis and cryptococcosis through contaminated droppings. Their nests serve as breeding grounds for mites and lice, further exacerbating storage issues.

Major Bird Pests of Stored Grain

Crow (*Corvus splendens*)

- **Order:** Passeriformes
- **Family:** Corvidae
- **Nature of Damage:** Spillage, contamination, seed removal in fields, structural damage to sacks.
- **Identification:** Black body, grey neck, 43 cm in size.

Sparrow (*Passer domesticus*)

- **Order:** Passeriformes
- **Family:** Ploceidae
- **Nature of Damage:** Granivorous, damages bag storage and contaminates with droppings and feathers.
- **Identification:** Sexual dimorphism; males are noisy with monotonous calls.

Pigeon (*Columba livia*)

- **Order**: Columbiformes
- **Family**: Columbidae
- **Nature of Damage**: Feeds on stored grains, contaminates with droppings, and spreads diseases like *Salmonella*.
- **Identification**: Metallic sheen, guturgu sound, found in clusters near old buildings.

Parrot (*Psittacula krameria*)

- **Order**: Psittaciformes
- **Family**: Psittacidae
- **Nature of Damage**: Attacks ripening crops and grains in open storage.
- **Identification**: Green body, red hooked bill, and distinctive calls.

Impact of Bird Pests on Stored Grains

Birds can cause extensive damage to stored grains through:

1. Pecking of sacks leading to spillage.
2. Nesting inside buildings and causing blockages.
3. Contamination with droppings, feathers, and decaying bodies.
4. Spreading diseases like *Histoplasmosis*, *Cryptococcosis*, and *Aspergillosis*.

Table 1: Major Bird Pests and Their Damage to Stored Grains

Bird Species	Scientific Name	Nature of Damage	Habitat
Crow	*Corvus splendens*	Pecking grains, spillage in open storage	Fields, warehouses, threshing yards
House Sparrow	*Passer domesticus*	Grain damage in bags, contamination	Buildings, warehouses, and open storage
Common Myna	*Acridotheres tristis*	Feeding on grains, contamination	Fields, warehouses, and open storage
Pigeon	*Columba livia*	Droppings, feather contamination	Goods sheds, mills, old buildings
Parrot	*Psittacula krameria*	Feeding on stored grains and ripening crops	Grooves in trees, buildings, colonies

Management Strategies for Bird Pests

Preventive Measures

- Sealing entry points in storage structures.
- Installation of bird-proof netting on open storage.
- Regular inspection and hygiene management.

Physical Control

Technique	Description
Laser Scarecrows	Using laser lights to deter birds.
Spikes and Netting	Prevent roosting on buildings.
Reflective Devices	Use of reflective tapes to scare birds.

Biological Control

Biological control involves the introduction of natural predators such as hawks and falcons to reduce bird pest populations in storage areas. These raptors prey on nuisance birds like pigeons, sparrows, and crows, effectively deterring them from roosting and feeding. The presence of predators disrupts bird activity, providing an eco-friendly and sustainable method of pest management. This approach minimizes reliance on chemical repellents and preserves ecological balance while safeguarding stored grains.

Chemical Control

Chemical control involves the use of bird repellents such as methyl anthranilate, a food-grade compound that acts as an irritant to birds without causing harm. It deters birds by targeting their trigeminal receptors, leading to discomfort when inhaled or ingested. However, its application must be carefully regulated to ensure compliance with food safety standards and prevent contamination of stored grains. Proper dosage and targeted use are essential to minimize risks to non-target organisms and maintain product quality.

Integrated Bird Pest Management (IBPM)

Integrated Bird Pest Management (IBPM) is a holistic approach that combines preventive, physical, biological, and chemical control methods to effectively reduce bird-related damage in stored grain systems. Preventive measures such as sealing entry points and maintaining hygiene are combined with physical deterrents like nets, spikes, and laser devices. Biological control through natural predators like hawks and falcons further enhances management efforts, while chemical repellents are applied cautiously to avoid food contamination. This integrated strategy ensures sustainable, cost-effective, and environmentally safe bird pest management.

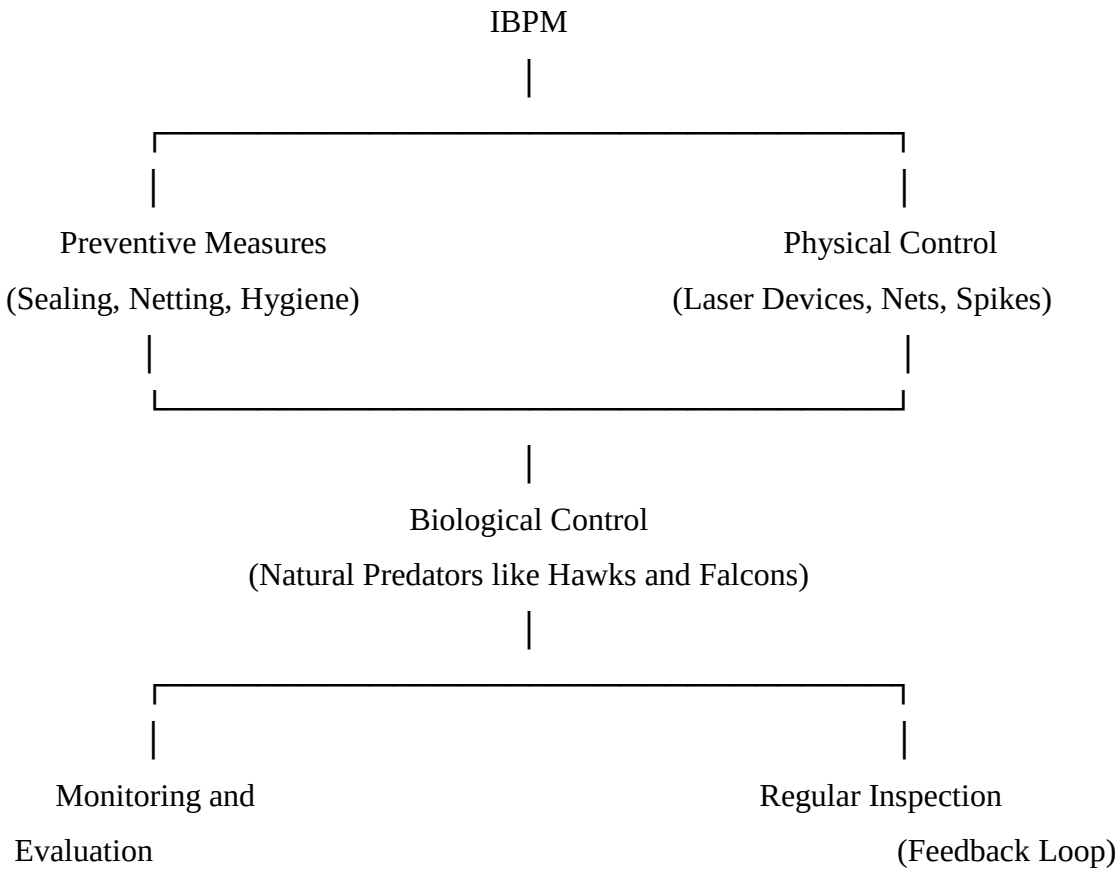

Fig. 1. Flowchart: Integrated Bird Pest Management practices:

Conclusion

Bird pests pose a significant threat to both agricultural fields and stored grains. Understanding their behavior, habitats, and damage patterns is crucial for effective management. A combination of physical barriers, scare tactics, and environmental modifications remains the most sustainable approach. Continued research on innovative solutions like laser scarecrows and biological control can further reduce losses.

References

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