

GROUP FORMATION AND SOCIAL RELATIONSHIPS IN FARM ANIMALS

LPM-609(Unit-III)

Lecture - 1



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Group Formation in Farm Animals

- ▶ Each of the general systems of behaviour: At least some tendency to draw animals together, except agonistic behaviour (Keeping animals at a distance or driving them apart).
- ▶ Shelter seeking keeps animals together (To find shelter in each other's bodies or seek common shelter in a barn or under a tree).
- ▶ Ingestive and investigatory behaviour draws animals apart (for searching of food and investigating the surrounding environment).

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- Mutual investigation, a common source of food or nursing may draw animals together in groups.
 - In animals which form flocks and herds, allelomimetic behaviour (Performance of a behavior increases the probability of that behavior being performed by other nearby animals) is a strong and constant cohesive force.
 - By following and mimicking each other they form tightly organized groups.
 - Care giving and care-soliciting behaviour are also powerful forces of attraction.

- Sexual behaviour causes strong attraction, particularly at certain times and seasons.
- Thus, most animal species will form social groups, even if not held together in pens.

Two types of groups:


- Homogeneous Groups
- Heterogeneous Groups






Homogeneous Groups


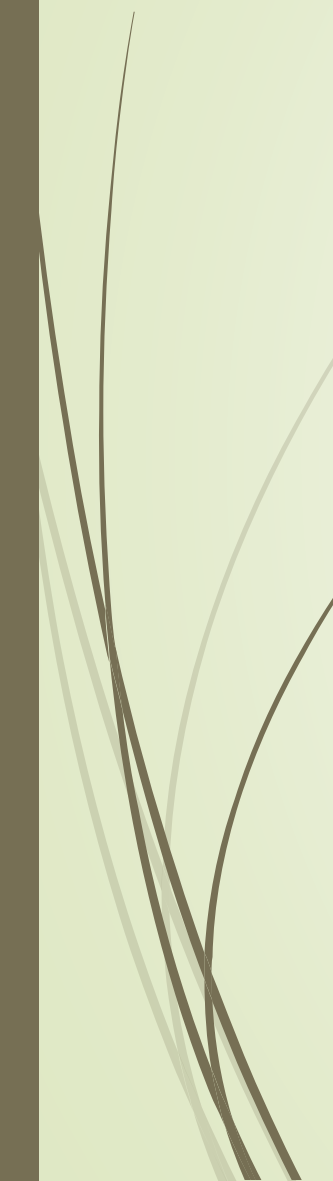
- ▶ Since the patterns of behaviour differ between the two sexes, and between young and adult animals, there is a natural tendency for animals to form groups of like individuals.
- ▶ In wild mountain sheep and in many other ungulates, the males and females form separate groups except during the breeding season.
- ▶ Before the lambing season, females stay in a separate group, and after the lambs arrive there is a tendency for the young to form little groups of their own a short distance away from their mothers.

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- The adult females spend most of their time grazing, but the young lambs receive much of their nourishment in a more concentrated form and hence have more spare time for play and other activities.
 - Groups of females are often formed artificially by the practices of animal husbandry.
 - Groups of males are used more rarely, partly because of economy and partly because of the likelihood of severe fighting during the breeding season.

Heterogeneous Groups

- The **female-young group** is the most important and common one in domestic animals.
- In domestic species, the males pay little if any attention to the young, so the **male young group** is very rare in the higher animals.
- Although males help care for their offspring in many species of wild birds and mammals and in some fish, where the males guard nests and later guard the young fry.


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- **Male female groups** are naturally formed in many species during the breeding season and similar groups are formed artificially in domestication.
 - The most elaborate heterogeneous group is that of males, females and young.
 - Among domestic mammals and birds, such groups are rarely permitted.

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- ▶ However, among their wild ancestors, wolves alone have male female type of group.
 - ▶ Male as well as female wolves help take care of the young and attachments between the two sexes are long lasting.
 - ▶ In rearing domestic mammals and birds, one would expect that individuals would adjust best to each other in groups which are natural to the species concerned.
 - ▶ The adjustment among individuals is most poor in groups not formed naturally.



Inter-group interactions

- Inter-group interactions are also influenced by resource availability.
- During winter, when food is scarce, two or three flocks of turkeys may join into a loosely associated group in an area where food is plentiful.
- Since jungle fowl usually stay within their territories year-round inter-group interactions are less common than the other species.


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- Although individuals may occasionally move to join a new flock.
 - Inter-group interactions probably occur most frequently at the beginning of the breeding season.
 - Breeding aggregations or breeding pairs are formed by members of different groups and males from different groups compete with one another for territories or females.



Intra-group interactions

Male–male


- ▶ Interactions among adult male birds are primarily competitive, particularly during the breeding season.
- ▶ When there is more than one male in an established flock, the males form a dominance hierarchy.
- ▶ Dominant males are typically relatively tolerant of subordinate males outside the breeding season.

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- But the presence of a dominant male can lead to the suppression of territorial and reproductive behaviours in subordinate males.
 - Dominant jungle fowl and fowl roosters crow at a higher rate than subordinates.
 - Dominant males often attack subordinates that crow and crowing in subordinates is also suppressed in situations in which the dominant rooster can be seen or heard but in which he has no direct contact with the subordinate males.



Female–female


- ▶ Like males, the females of domesticated bird species typically form dominance hierarchies.
- ▶ Unlike males, dominance relationships between adult females are often extremely stable and may persist for years even after individuals' competitive abilities with strangers have declined.
- ▶ Overt aggression in established groups is rarer among females than among males.


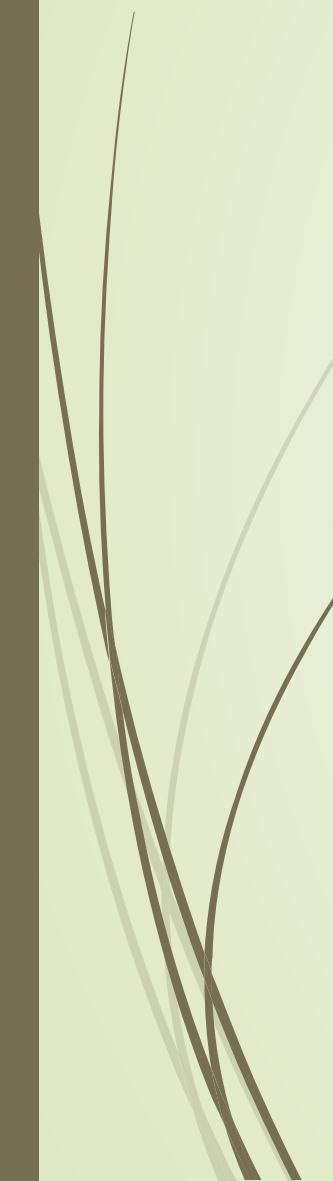
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- Establishing and maintaining a social order requires that individuals recognize one another or at least recognize certain signals of status.
 - In hens, status is affected by individual physical characteristics like age, breed, comb size/colour and body weight.
 - Body weight characteristics can be affected by state of moult and health including parasite load.



Male–female

- The most conspicuous male–female interactions in domesticated birds occur during mating.
- Male courtship displays are generally elaborate, involving vocalizations and noises, postures, spreading of the feathers in such a way that the male appears larger.
- Also emphasizes male plumage characteristics, and sometimes colour changes or enlargement of structures like the snood of male turkeys.
- Females also engage in behaviours that initiate courtship and also during the courtship sequence, primarily changes in posture or proximity to particular males.

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- ▶ Plumage colour appears to have little effect on the jungle fowl female's choice of a mate, although comb size does.
 - ▶ Males infected with nematode parasites have smaller combs and females are assessing fitness using comb size as a cue.
 - ▶ However, jungle fowl females do not select mates based solely on comb size, but seem to use a suite of labile morphological characteristics, including comb colour, eye colour and spur length, when selecting mates.
 - ▶ Similarly, turkey females prefer males with longer snoods and wider skullcaps, features that are correlated with a lower parasite load in wild males; snood length may also be an indicator of the male's energy reserves.

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- In contrast, domesticated fowl hens appear to use aspects of the mating display as well as morphological features in selecting mates.
 - In fowl, the hen selects the nest site, incubates the eggs and rears the young.
 - Bobwhite males and females, on the other hand, build their nest together, and both incubate the eggs.
 - The male also remains with the female after the chicks hatch to help in defending the brood.

Benefits and costs of group formation

Benefits	Costs
Reduction in the risk of predation or increased feeding efficiency due to aggregative response to prey density.	Greater interference from competitors.
Individual risk of predation diluted by joining a group.	Greater risk of contracting disease.
Groups can tackle larger prey than single individuals.	Greater chance of being cuckolded or mistakenly feeding someone else's offspring.
Grouping confuses predators, making it harder for them to target prey.	Investment in foraging, courtship or other activities exploited by other group members.
Huddling in groups helps thermoregulation.	Young may be cannibalized by neighbours.
Energetic advantages to swimming or flying in a group through slipstreaming.	Greater risk of inbreeding.



THANKS

