

# **Selection Methods**

**Dr. D. Chakraborty**

# Methods

- **Tandem selection**
- **Independent culling Level**
- **Selection index**

# Tandem selection

- A selection method to select for one trait until the trait is at a satisfactory achievement.
- If the genetic correlation is positive the one trait may also improve another.
- Disadvantages are it takes time and effort and it the least efficient method.

# Independent culling Level

- Method of selecting two or more traits but they both need to meet a minimum standard. It is very strict if the animal didn't meet one trait it would be rejected.
- This is used to select for body conformation in show cattle and breed coat colour.

- Independent culling is better than tandem since selection it selects for more than one trait at a time.
- **Disadvantage**- possible to cull some genetic superior individuals due to them falling a little below the cut off.

# Selection index

- A method which requires separate determination of the value or economic weight with a total score of all traits. The animals with the highest scores are kept for breeding.
- The selection index value for the individual can be written in the following form

$$I = b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_nX_n$$

Where,  $b_1, b_2, b_3, \dots, b_n$  are the weights given to each trait (these weights are common for individuals of a population) and  $X_1, X_2, X_3, \dots, X_n$  are the performance records for the various traits of the same individual

- The selection index is the most efficient because even if the animal is deficient in one trait but exceeds in others it would still be selected in breeding.
- There is also more genetic progress is improvement.

# Steps of selection index method

- formulate breeding objectives (weight, length girth etc)
- determine population mean
- determine relative economic weights
- compute economic weight
- construct selection index for determining estimated breeding value.