

**Lecture 5**

# Random meeting

• Random mating: Totally haphazard mating, with no regard to the genetic makeup (genotype) of the mate, so that any sperm has an equal chance of fertilizing any egg. Random mating rarely, if ever, occurs, but the concept is important in population genetics. Also known as panmixus.

# Example of random meating

• Example, if the genotypic frequencies in a population are MM=0.83, MN=0.16 and NN=0.01 then we would expect that 68.9% (0.83 x 0.83 X 100) of the matings would occur between MM individuals.

## Inbreading

• Inbreeding, the mating of individuals or organisms that are closely related through common ancestry, as opposed to outbreeding, which is the mating of unrelated organisms.

### Effect of inbreeding on small and large population

• Both inbreeding and drift reduce genetic diversity, which has been associated with an increased risk of population extinction, reduced population growth rate, reduced potential for response to environmental change, and decreased disease resistance, which impacts the ability of released individuals to survive

### Line breading

* In genetic terminology, line breeding refers to mating within a specific breed in which a certain number of genetic lines is available. … This is particularly important if line breeding and, as a result, close breeding are implemented in a targeted way.

**Example of line breeding**

* Examples: Cousins Grandparents to grand offspring, Half-brother to halfsister. Line breeding increases genetic purity amongst the animals of progeny generations.

#### How the propetency of line breading is increased

• Various mating schemes of animals are classified under two broad categories — inbreeding and outbreeding. Classification depends on the closeness of the biological relationship between mates. Within each category, a wide variation in intensity of this relationship exists. A very fine line separates the two categories. Mating closely related animals (for example, parent and offspring, full brother and sister or half brother and sister) is inbreeding. With less closely related animals (first cousins, second cousins), people disagree about where to draw the line between inbreeding and outbreeding.

##### How the propetency of line breading is increased

* **Technically, inbreeding is defined as the mating of animals more closely related than the average relationship within the breed or population concerned. Matings between animals less closely related than this, then, would constitute outbreeding. These two systems of mating, with varying intensities in each, are described in Table 1. Matings indicated within the inbreeding category are self-explanatory; those within the outbreeding category are defined in the glossary.**
* **Matings between animals less closely related than this, then, would constitute outbreeding. These two systems of mating, with varying intensities in each, are described in**

### The End

• **Thank you** 💗😊😊❣️🌹**sir**