PRACTICAL NO. 4

ESTIMATION OF EPA/ MPPA

The most probable producing ability (MPPA) is also known as expected producing ability (EPA) or **Breeding Value of Cow** of dairy animal indicates to the inherent milk producing ability. Milk production is one of the most important economic traits in cows. MPPA is a method selection for traits, which are, repeated several times in the life of an animal e.g. milk production in cows, litter size in pigs etc. It is used to predict the future performance of animals and helps to rank the animals especially dams in a herd for selection. As most of the economic traits are influenced by environment, the error due to environmental variation can be eliminated if selection based on several records of the same individual. The repeatability is an indicator of the extent to which animal "superiority in one measurement will be seen in subsequent measurements of the same animal. Therefore the repeatability value is used in estimating MPPA.

MPPA = Herd average + (nr/ 1 + (n -1) r) (Individual cow average - Herd average)

Where n = number of records and r = repeatability of the trait

Exercise:

1. The average milk production in a lactation of Tharparkar herd is 1800 kg. The milk production of 4 cows in different lactations is given as under:

Cow No.	Lactation 1	Lactation 2	Lactation 3	Lactation 4
1	1820	1860	-	-
2	1810	1836	1860	1840
3	1830	1850	1870	-
4	1840	-	-	-

Taking the repeatability of milk yield as 0.40, estimate the MPPA of all the cow and rank them.

2. The average milk production of flock of goats is 400 kg. The milk production of 4 outstanding goats in different lactation is as under:

Goat No.	Lactation 1	Lactation 2	Lactation 3
1	460	480	-
2	390	400	450
3	480	-	-
4	400	380	-

Solution:- Excercise-1

Cow N. 1

Lactation 1 = 1820 Kg
Lactation 2 = 1860 "
Herd avg = 1800 "
Repeatability = 0.40
n = N. of Lactation / Record

$$MPPA = \text{Herd avg} + \frac{nr}{1+(n-1)r}(\text{Individual cow avg.} - \text{Herd avg})$$

$$\text{Ind. Cow avg} = \frac{1860+1820}{2} = \frac{3680}{2} = 1840$$

$n = 2$

So

$$MPPA = 1800 + \frac{2 \times 0.40}{1+(2-1)0.40}(1840-1800)$$

$$= 1800 + \frac{0.80}{1.40} \times 40$$

$$= 1800 + 22.85$$

Cow 1 MPPA = 1822.85

Similarly, Let, Calculate MPPA for all Cows and Rank them according their MPPA Value.