



FACULTY OF AGRICULTURAL SCIENCES & ALLIED INDUSTRIES

ENT-121: Fundamentals of Entomology

Lecture 22: Biotic Potential and Food Competition:

It is the innate ability of the population to reproduce and survive. It depends on the inherited properties of the insect i.e., reproduction and survival. Potential natality is the reproductive rate of the individuals in an optimal environment. Survival rate depends on the feeding habits and protection to young ones (eg. Viviparity). Generally insects with high reproductive rate tend to have low survival rate and vice versa. Insect pests with high reproductive rate and low survival rate are called r strategists named after the statistical parameter r, the symbol for growth rate coefficient. Such pests succeed because of sheer numbers. E.g. Aphids.

The two evolutionary "strategies" are termed r-selection, for those species that produce many "cheap" offspring and live in unstable environments and K-selection for those species that produce few "expensive" offspring and live in stable environments.

K strategists reproduce slowly but effectively compete for environmental resources and so their survival rate is high. (K letter denotes flattened portion of growth curve) eg. Codling moth of apple. Birth rate or natality is measured as the total number of eggs laid per female per unit time. Factors determining birth rate are fecundity, fertility and sex ratio.

Environmental Resistance is the physical and biological restraints that prevent a species from realizing its Biotic potential

