In the workshop (The Future of our Farms—An Introduction to Agriculture) we look at global issues that face today’s farmers. These include: their impact on global warming, their water consumption, soil erosion and animal ethics. We are going to focus on another issue—the biodiversity of a farm as this links closely to your A-Level studies.

Biodiversity — the variability among living organisms.

Context: We are seeing more oil seed rape across our farmers’ fields, mainly because of its profit value. However, this has caused populations of lapwing to dramatically fall by 80% since 1960. The introduction of oil seed rape has also created a monoculture of plant species on many farms.

Loss of Biodiversity is a big problem for today’s farms. Below is a factsheet of key terms that you will need to know for your A-Level that link to ‘Biodiversity on a Farm’:

**Year 12**

1) **Species richness** is a measure of the number of different species in a community.

2) An **index of diversity** describes the relationship between the number of species in a community and the number of individuals in each species.

This is the formula for index of diversity:

\[ d = \frac{N(N-1)}{\sum n(n-1)} \]

where \( N \) is total number of organisms of all species and \( n \) is total number of organisms of each species.

**Year 13**

1) Populations of different species form a community. A community and the non-living components of its environment together form an ecosystem.

2) An ecosystem supports a certain size of population of a species, called the **carrying capacity**.

3) This **population size can vary** as a result of: the effect of abiotic factors and interactions between organisms: interspecific and intraspecific competition and predation.

4) The **size of a population can be estimated** using: randomly placed quadrats, or quadrats along a belt transect for slow-moving or non-motile organisms and the mark-release-recapture method for motile organisms.

If you are interested in studying an Agricultural related degree at Newcastle University go to [https://www.ncl.ac.uk/nes/undergraduate/agriculture/](https://www.ncl.ac.uk/nes/undergraduate/agriculture/) to find out more.