Unpredictable Nature of Environment on Nitrogen Supply and Demand

**Abstract**

Current knowledge suggests that biodiversity and randomness will increase. This is reflected in findings that more and more processes are independent. More contemporary work delineated the independence of yield potential (YP0) and nitrogen (N) response in cereal crop production. Each year, residual N in the soil following crop harvest is different. Yield levels change radically from year to year, a product of an ever-changing and unpredictable/random environment. The contribution of residual soil N for next years’ growing crop, randomly influences N response or the response index (RI). Consistent with the 2nd law of thermodynamics where it is understood that total entropy or orderliness increases with time and is irreversible, biological systems are expected to become more and more random with time.  Consequently, a range of different biological parameters will each influence YP0 and RI in an unrelated manner. The unpredictable nature that environment has on N demand, and the unpredictable nature that environment has on final grain yield, dictate the need for independent estimation of multiple random variables that will be used in mid-season biological algorithms of the future.