

Chapter 3

Climate-Evolution—The Interrelationship



The ability of plants to adapt to different climatic conditions under natural selection can be found through an analysis of genetic variation among wild populations from different environments. This analysis suggests strategies for adaptation of plants for agricultural production in a changing climate. Genetic variation in a distant wild relative of the rice *Microlaena stipoides* has been investigated along a transect encountering contrasting environments (Shaper et al. 2012). The availability of rice genomic sequence resources makes this an attractive system to study. This analysis suggests that greater diversity may be found in populations in more stressed environments. More detailed analysis of these types of systems should provide important insights into strategies for crop adaptation to climate change. Domestication of new species which are better suited to the new climates is one option (Shapter et al 2013).

References

- Shapter FM, Fitzgerald TL, Waters DLE, McDonald S, Chivers IH, Henry RJ (2012) Analysis of adaptive ribosomal gene diversity in wild plant populations from contrasting climatic environments. *Plant Signal Behav* 7:1–3
- Shapter FM, Cross M, Ablett G (2013) High-throughput sequencing and mutagenesis to accelerate the domestication of *Microlaena stipoides* as a new food crop. *PLoS ONE* 8(12):e82641