

PROBLEM

Plants vary in their ability to survive periods of waterlogging. Species differ, and within species some strains or cultivars are superior to others. Observe which plants have survived in waterlogged areas in your district, and those that are abundant on well drained sites. Design an experiment to show whether or not species found in waterlogged conditions can in fact survive waterlogging better than others.

INFORMATION

1. Use annual species for which abundant seed with high germination is available. Alternatively you might like to use perennials and compare say seedlings and one year old plants.
2. Set up plants in pots for which you can, when necessary, plug up the drain holes and flood the plants to about 1 cm above soil level. Unplug drain holes after set times. Alternatively, use a free draining pot and set the whole pot in a large tub and fill that with water to the required depth.

DESIGN OF EXPERIMENT

1. At what stage of growth are you going to flood the plants; to what depth? For how long?
2. How are you going to measure recovery, growth, yield etc. Remember a plant has both above and below ground parts.
3. How many harvests are you going to make?
4. What other soil or water parameters might you measure during your experiment?

REFERENCES

- Kramer, P.J. (1951). Causes of injuries to plants resulting from flooding of soil. *Plant Physiology* 26 : 722-36 (heavy going).
- Weier, T.E., Stocking, C.R. and Barbour, M.G. (1974). *Botany. An Introduction to Plant Biology* (5th ed.) (Wiley : New York) Chp. 11 and 12.
- Wilson, E.O. and others (1973). *Life on Earth* (Sinaver Assoc : Staniford) pgs 437-47 (for a general understanding of root structure and function).