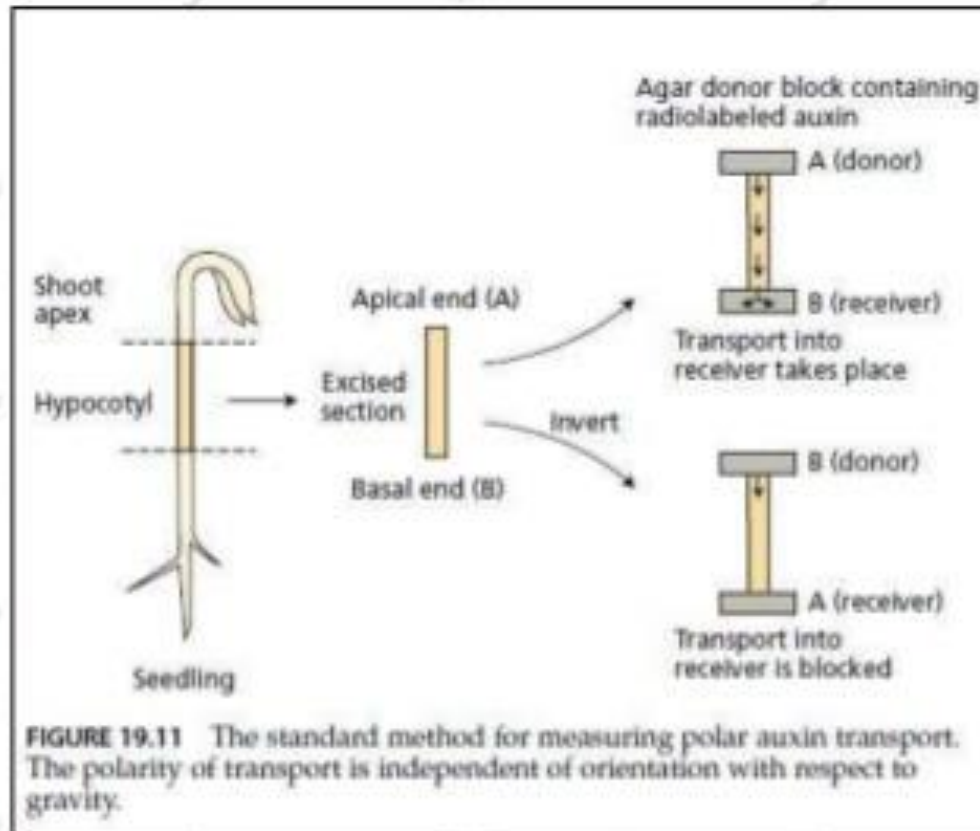


# Plant Developmental Biology

# Polar transport require energy and is gravity independent

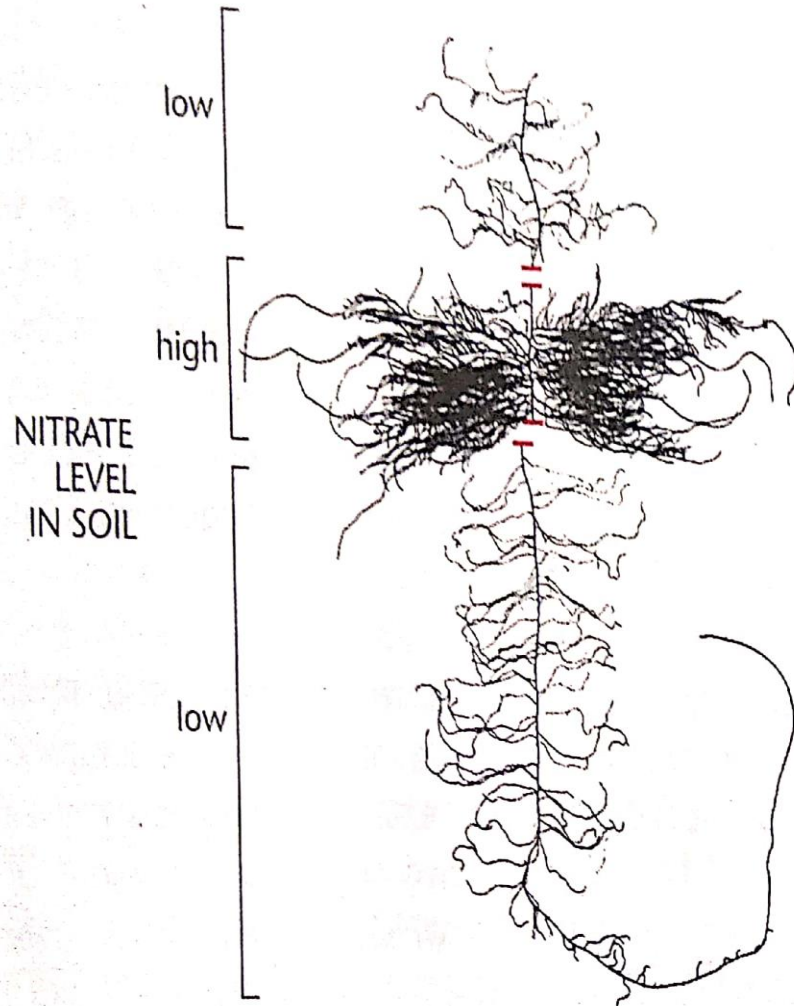


# Polar transport require energy and is gravity independent

- The velocity of polar auxin transport can exceed  $3\text{mmh}^{-1}$
- faster than the rate of diffusion
- slower than phloem translocation rates
- Polar transport is also specific for active auxins, both natural and synthetic.
- Neither inactive auxin analogs nor auxin metabolites are transported polarly,
- polar transport involves specific protein carriers on the plasma membrane that can recognize the hormone and its active analogs.

## Polar transport require energy and is gravity independent

- The major site of basipetal polar auxin transport in stems and leaves is the vascular parenchyma tissue.
- Acropetal polar transport in the root is specifically associated with the xylem parenchyma of the stele



**Figure 5-3.**  
**Response of root development to changes in nutrient supply.** Barley roots growing through a soil region with a high concentration of nitrate develop many more lateral roots. (Courtesy of Malcolm Drew.)