

- **Contractile roots**

- Many lily bulbs are pulled a little deeper into the soil each year as additional sets of contractile roots are developed. The bulbs continue to be pulled down until an area of relatively stable temperature is reached.



- Mechanisms of contraction include the thickening and constriction of parenchyma cells, causing the xylem elements to spiral somewhat like corkscrew.



- **Parasitic roots**

- A number of plants, such as the dodders and broomrapes **have no chlorophyll** (necessary for photosynthesis) and have become **dependent on plants with chlorophyll for their nutrition.**



- They parasitize their host plants via somewhat **rootlike projections** called ***haustoria*** (singular: **haustorium**), which develop along the stem in contact with the host. The **haustoria penetrate the outer tissues and establish connections with the water and food conducting tissues.**



Wieloszybowy brzopec

- **Root Nodules**

- When Peas and beans (and other members of the **Legume Family**) and a few other plants are uprooted, numerous small **swellings** can be seen along the roots. These *root nodules* contain **bacteria (*nitrogen-fixing bacteria*)** that supplement the plant's nitrogen supply.



Root Nodules