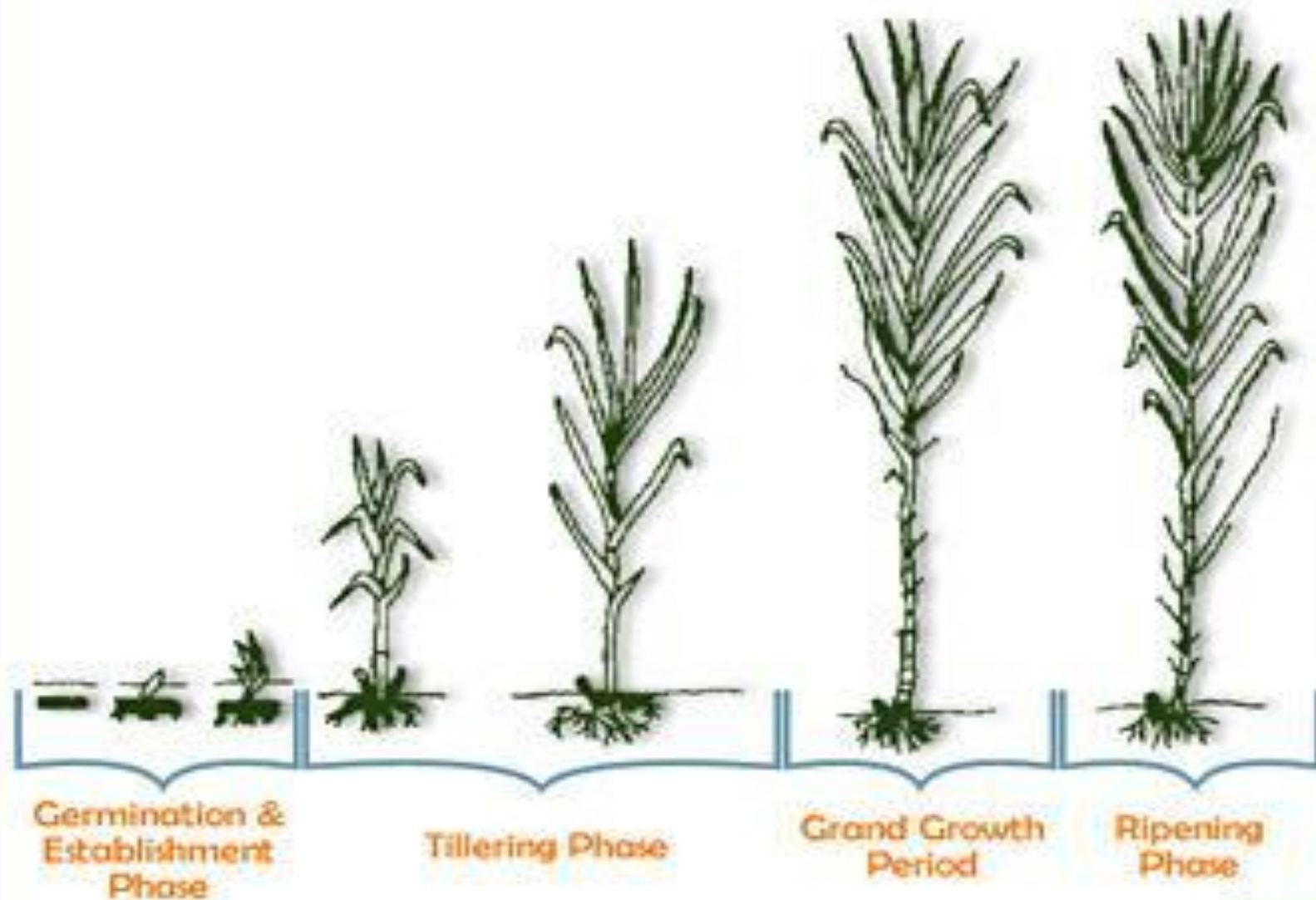


Sugar cane

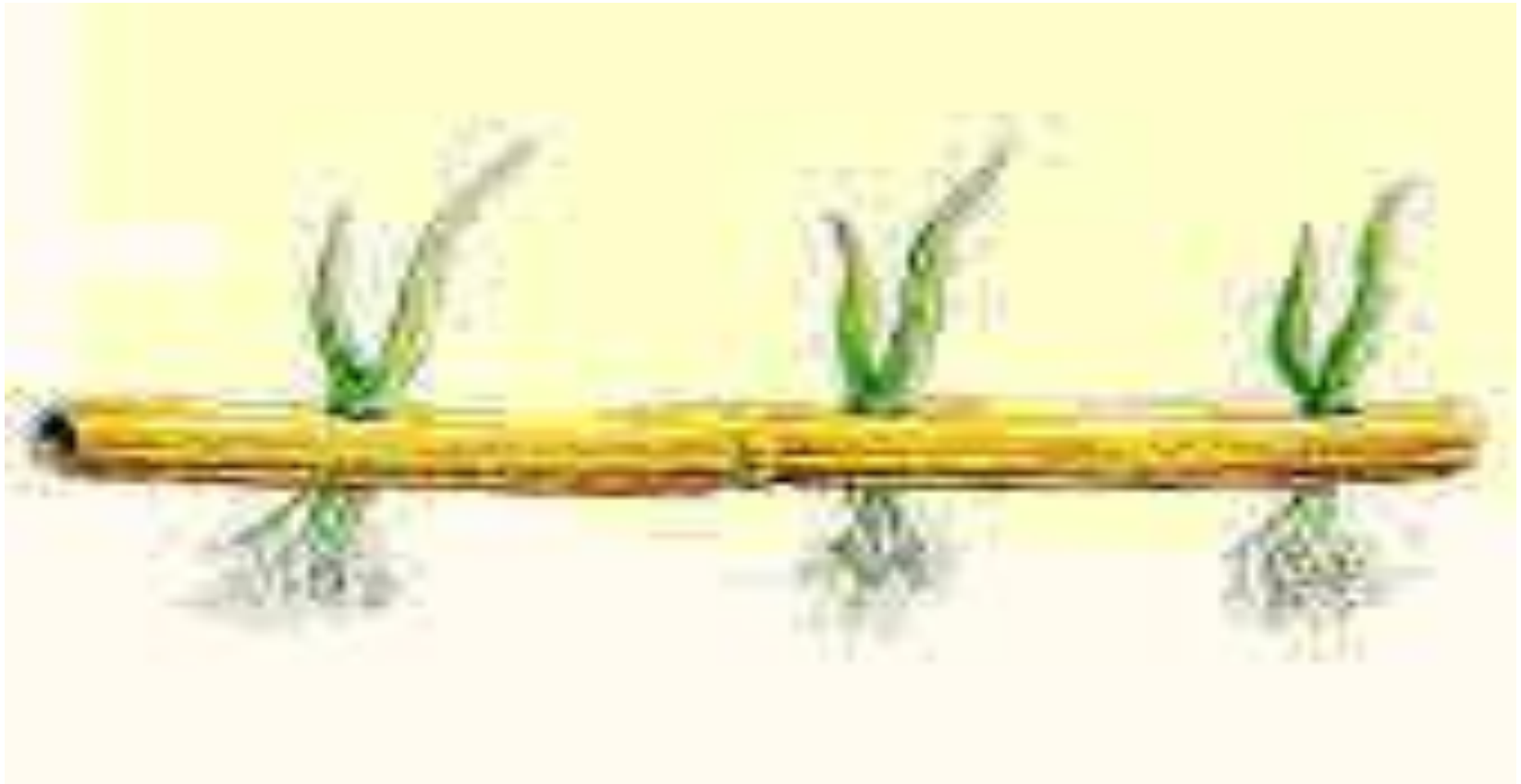
Saccharum officinarum

Growth Stages of sugarcane

- **Sugarcane, a C4 plant, is considered as one of the most efficient convertors of solar energy. It has five growth phases-**



Germination Phase



- **When cultivated commercially, sugarcane is propagated only vegetatively by stem parts (Cuttings) or by whole stems.**
- **Seed propagation is employed only in selection.**
- **Planting cuttings should have at least three buds.**
- **The sprouting phase (the beginning is marked by 10% and the complete stage by 75% puff sprouts) is thought to commence when two leaves appear on the stem.**

Tillering Phase



- **Tillering of sugarcane in the tropics begins soon (in about 15-20 days) after the first sprouts appear.**
- **The secondary sprouts are formed from underground buds.**
- **In early ripening varieties of sugarcane, tillering lasts for 4-6 months, and finishes after the row contact.**
- **In the late-ripening varieties of sugarcane, tillering lasts long as 6-8 months.**
- **Every new sprout appears in 2 to 4 days.**

Grand Growth Phase



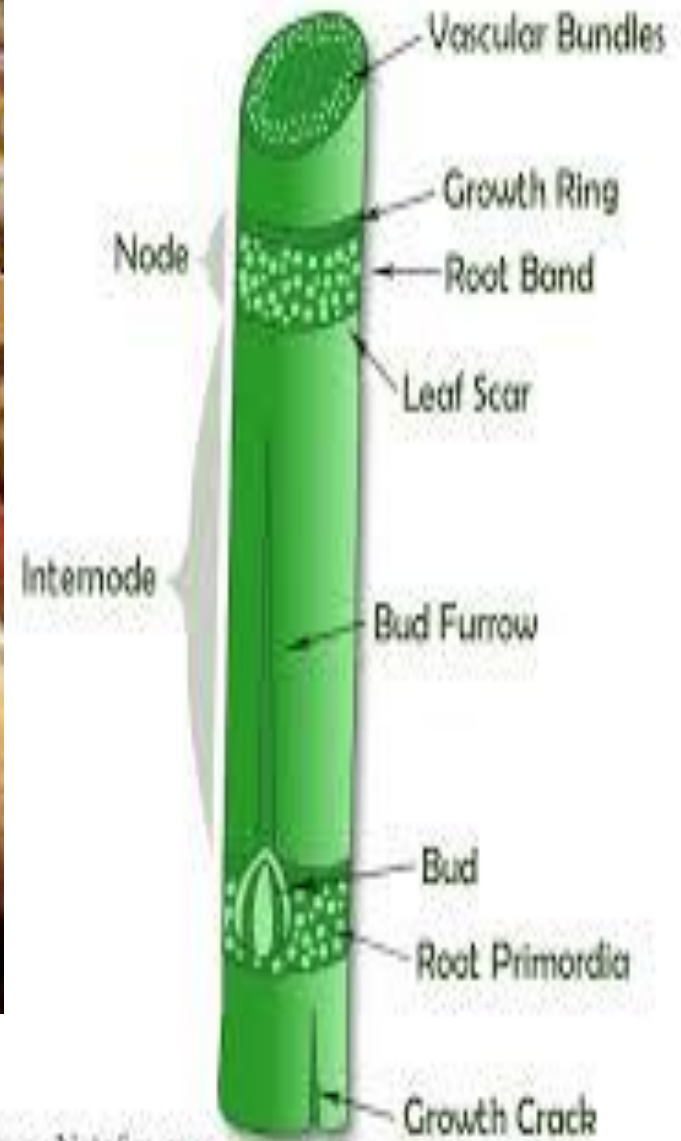
- **This stage lasts for 5 to 8 months. Sugarcane plants normally vegetate at this stage, if properly supplied with heat and moisture.**
- **Grand growth phase starts from 120 days after planting and lasts up to 270 days in a 12-month crop.**

- **Most important phase of the crop wherein the actual cane formation and elongation and thus yield build up takes place.**
- **Leaf production is frequent and rapid during this phase with LAI reaching around 6-7.**
- **Under favorable conditions stalks grow rapidly almost 4-5 internodes per month.**

Maturation and Ripening



- Its maturation is determined by a definite sucrose level in the stems (up to 14-16% stem mass) and a low level of reducing sugars.
- The commercial ripening of stems can be identified quite reliably by the ratio of refractometry indices of juice taken from the seventh-eighth internodes and lower (0.95-0.98).
- In tropics, by harvesting time the sugarcane stems accumulate on the average up to 14-16% sugar; in subtropics 8-12% sugar.



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