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Pinus: III

Gametophyte: The pollen grains start germination within the pollen sacs. The nucleus divides to form two prothallial cells and one antheridial cell. The

The antheridial cell divides to form a generative cell and tube cell.

The pollen grains are shed at 4-celled stage and further development takes place after pollination.

The mature male gametophyte of Pinus is a 6 celled structure. The development of megaspore into the female gametophyte is by ~~and~~ large, similar to that of ~~and~~ Pollination and Fertilization:

The pollination is anemophilous. The intine of pollen grains develops pollen tube after falling on the micropyle of ovule. The generative cell divides to form a stalk cell and a body cell. The body cell divides to form two non-ciliate sperms.

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pollen tube releases sperms in the vicinity of egg. A sperm unites with the egg to form zygote which develops into proembryo and then embryo. cleavage polyembryony is common but only one embryo attains maturity. The mature seed consists of seed coat with a number of cotyledons (2 to 15). The seed germinates into a new plant after a period of rest.

Pinus species show:

1. Dimorphic branches
2. Dimorphic leaves
3. Typically winged pollen grains
4. pollen on liberation form yellow clouds of spores called "sulphur shower."