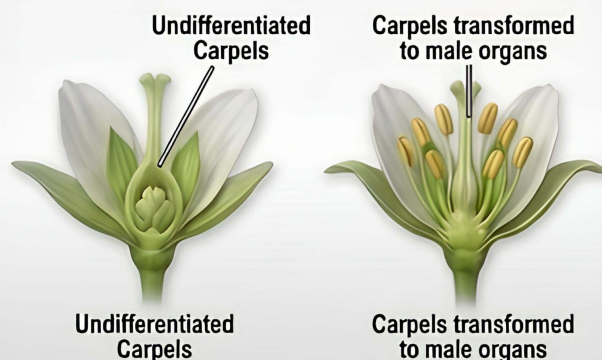
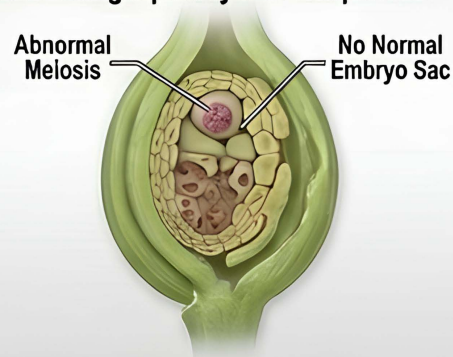


1. FEMALE STERILITY BASED ON STRUCTURAL DEFICIENCIES

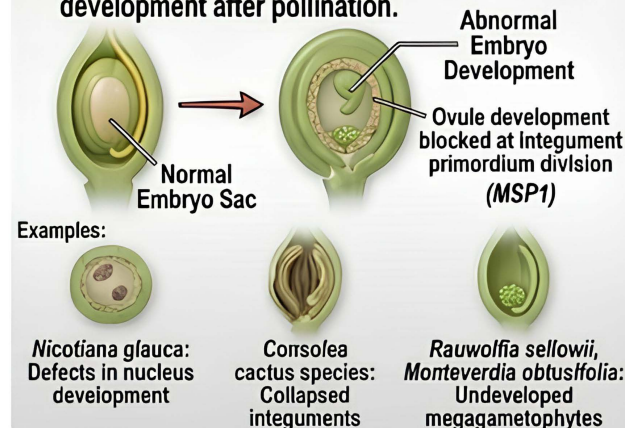
1a. Absence or incomplete formation of female organs.



1b. Female organs with abnormal embryo sac due to retarded megasporocyte development.

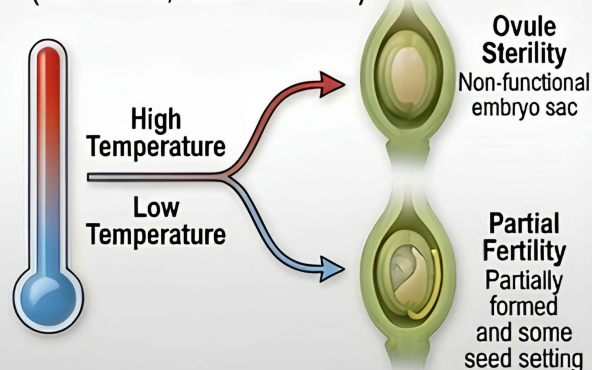


1c. Normal mature embryo sac but abnormal embryo development after pollination.

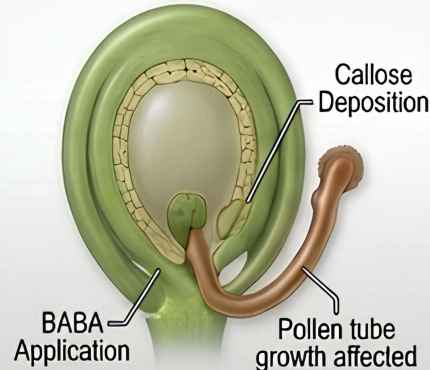


2. CONDITIONAL FEMALE STERILITY

2a. Thermosensitive female sterile mutant (Tfs1 in rice, AGO7 mutation)

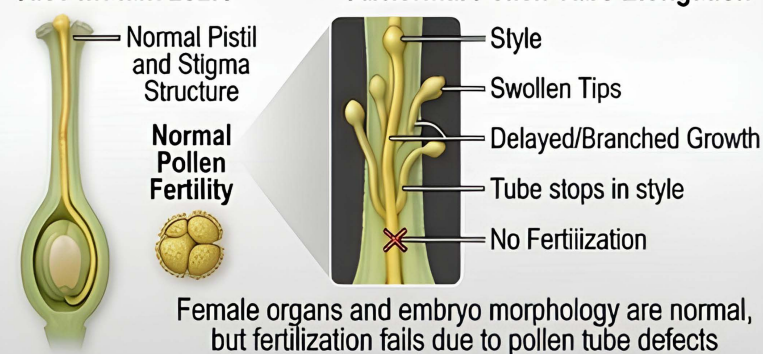


2b. BABA application in Arabidopsis



3. NON STRUCTURAL DEFICIENCY FEMALE STERILITY

Rice mutant 202R



Supplementary Figure 1. Representative mechanisms underlying female sterility in plants. Female sterility arises from (1) structural defects, including abnormal carpel, embryo sac, or embryo development; (2) conditional sterility regulated by environmental factors, such as temperature-sensitive fertility and ABA-induced inhibition of pollen tube growth; and (3) non-structural defects, where normal ovules failed to achieve fertilization because of impaired pollen tube elongation.