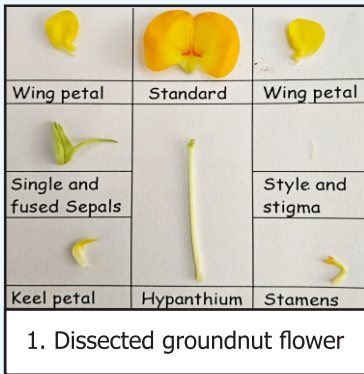


Artificial Hybridization technique in groundnut



1. Dissected groundnut flower



2. Ventral (Front) view of flower



3. Dorsal (Back) view of flower



4. Materials used in artificial hybridization



5. Select fully mature and right size bud



6. Hold flower bud gently between the thumb and index finger



7. Remove the single sepal from top to bottom side



8. Open the standard petal from base to top



9. Hold back the standard petal with thumb and index finger



10. Pull down or remove both wing petals



11. Pull down or remove keel petal



12. Gently remove the anthers



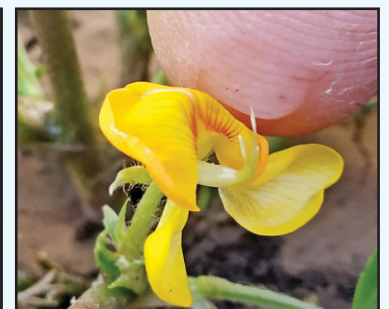
13. Emasculated flower bud



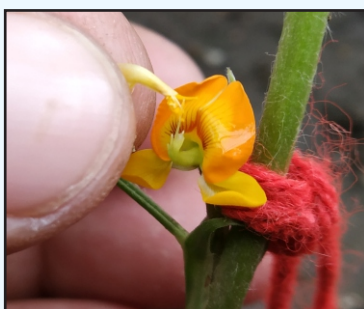
14. Tie colour thread on emasculated flower bud



15. Squeezed pollen from opened male parent flower



16. Moisturize stigma for pollen adhesion



17. Dust of pollen on stigma



18. Dust pollen on stigma through index finger



19. Pollinated flower bud



20. Emergence of hybrid pegs after 5-7 days of pollination

Steps of Artificial Hybridization in groundnut

A. Emasculation (4:00-6:00PM)

- Emasculate fully mature single flower bud at each node between 4:00 PM to 6:00 PM (Fig.5).
- Gently hold flower bud between the thumb and index finger of the left hand/right hand (Fig.6).
- Pull down single sepal opposite the standard petal and also fold down fused sepal (Fig.7).
- Open standard petal carefully with help of forceps from base to top (Fig.8).
- Hold back standard petal by the thumb and index finger (Fig.9).
- Pull down or remove wing petals by locking them with the standard petal (Fig.10).
- Pull outwards and remove keel petal with forceps to expose the anthers (Fig.11).
- Remove all the anthers gently from their bases with forceps (Fig.12, 13).
- Fold back the standard, wing, and keel petals to their normal state after emasculation.
- Tie colour thread on internode just above the emasculated flower bud for the identification in the next morning for pollination (Fig.14).

B. Pollination (6:30-8:30AM)

- Remove healthy open flower with hypanthium from the desired male parent.
- Remove calyx, standard and wing petals (Fig.15).
- Gently press middle portion of keel petal between the thumb and index finger to squeeze the sticky pollen mass at tip of keel petal (Fig.15).
- Moisturize emasculated flower bud stigma with clean water for proper pollen adhesion (Fig.16).
- Dust of pollen mass on tip of stigma by direct touching with keel petal or using brush or index finger (Fig.17, 18).
- Rinse fingers and forceps with alcohol/water to avoid contamination while changing male parent.
- Remove all the flowers except artificially pollinated flowers in female line to avoid self-pods.
- Emergence of hybrid pegs after 5-7 days of pollination (Fig.20).
- Flowers should be removed up to 15-20 days after completion of artificial hybridization to reduce competition for development of hybrid pods and it also reduce chances of formation of self- pods.
- Iron U-pins can be used to bend the branches near the soil to facilitate easy entry of the hybrid pegs into soil.
- Success rate of hybridization can be calculated by counting total hybrid pegs/pods to the number of pollinations made.

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