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COWPEA



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TAXONOMY

KINGDOM: Plantae

CLASS: Dicotyledon

SUB CLASS : Polypetalous

ORDER : Rosales

FAMILY: Fabaceae

SUB FAMILY: Papiloinaceae

GENUS: Vigna

SPECIES : unguiculata





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CROP DETAILS

- ❖ Cowpea originated in Africa and is widely grown in Africa , Latin America, southeast Asia and in the southern united states
- ❖ Cowpea (*Vigna unguiculata*, $2n=2x=22$) also called as southern pea and black eyed pea , is well adapted to the tropics.
- ❖ *Vigna unguiculata* is a member of the *Vigna* (peas and beans) genus. *Unguiculata* is Latin for "with a small claw", which reflects the small stalks on the flower petals.



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- ❖ Cowpea is primarily used in the form of dry seeds, green pods , green manure and cover crops.
- ❖ It requires very few inputs , as the plant's root nodules are able to fix atmospheric nitrogen , making it valuable crop for resource - poor farmers and well suited intercropping with other crops.
- ❖ All cultivated cowpeas are found within the universally accepted *V. unguiculata* subspecies *unguiculata* classification, which is then commonly divided into four cultivar groups: unguiculata, biflora, sesquipedalis, and textilis.



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FLORAL BIOLOGY

- ❖ **Inflorescence is an un-branched axillary raceme bearing several flowers at the terminal end of peduncles.**
- ❖ **The peduncles vary from 5 to 60 cm in length and are slightly twisted and ribbed.**
- ❖ **Calyx is longitudinally ribbed, tubular with 2-15 mm long sub-equal lobes.**
- ❖ **The corolla is papilionaceous with an erect standard petal spreading at anthesis.**
- ❖ **The pigmentation pattern of corolla varies from white to solid mauve with yellow spots near the base of the standard petal.**



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- ❖ **The wings are adherent to the boat-shaped keel, enclosing the androecium and gynoecium.**
- ❖ **The stamens are diadelphous (9+1), Anthers are bright yellow.**
- ❖ **Ovary is monocarpellary, unilocular with many ovules.**
- ❖ **Pods are pendent or vertically attached to the raceme axis.**
- ❖ **They are mostly linear, although curved and coiled shapes are also found.**
- ❖ **The length of pods may vary from less than 11 to more than 100 cm**



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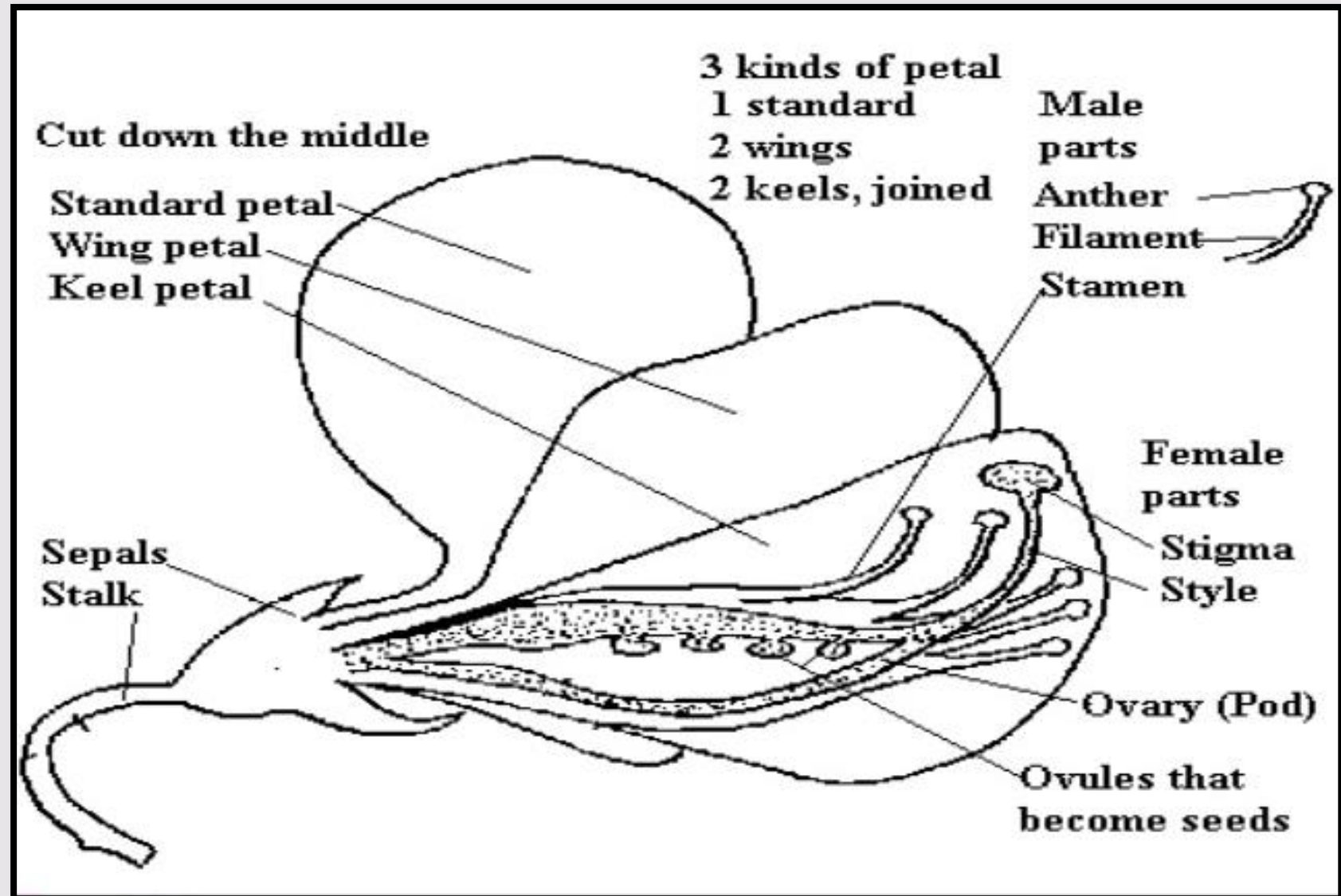
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BREEDING OBJECTIVES:

- 1. High green pod yield (vegetable type varieties)**
- 2. High seed yield (dry-seed type varieties)**
- 3. High fodder yield (fodder type varieties)**
- 4. Dual purpose (seed and vegetable type and seed and fodder)**
- 5. Earliness**
- 6. Appropriate plant type (erect, determinate for vegetable and seed type cultivars and spreading type for fodder type cultivars)**
- 7. Wider adaptability**
- 8. Photo-insensitive**
- 9. Short tender pods for whole pod processing**
- 10. Long, tender and string-less pods for fresh consumption**



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BREDDING PROCEDURE

PEDIGREE BREEDING:

The pedigree system of breeding is the most common method used by cowpea breeders. This method has been successful in developing cowpea cultivars with new combinations of characteristics and resistance to diseases.

BACKCROSS BREEDING:

The backcross breeding procedure has been found efficient for transferring single-gene resistance to specific diseases into cowpea cultivars. For example, this procedure has been used to transfer the Cls gene, which provides resistance to Cercospora leaf spot into the susceptible cultivar Colossus in USA.

MUTATION BREEDING:

Mutation breeding in cowpea has been utilized on a limited scale through irradiation by gamma rays to isolate mutants with increased yield and earliness.



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ACHIVEMENTS

- ❖ **Varieties** Pusa Phalguni suited for spring season, Pusa Barsati for rainy season and Pusa Dofasli for both the seasons have been evolved.
- ❖ **K 1552 (Pusa Komal)** evolved is an early variety which is resistant to bacterial blight
- ❖ **Variety Grant** is resistant to Fusarium wilt, **Chinese Red** is resistant to Phytophthora stem rot, **Mississippi 57-1** and **Iron** are resistant to root-knot nematodes have been evolved
- ❖ **Variety Goit, Dixies-Cream and Alabunch** are resistant to **cowpea** mosaic disease.



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RESEARCH INSTITUTES

- ❖ **CoVu-720(co-7) : developed from TNAU , Coimbatore . It is resistant to pod borer.**
- ❖ **V-585 : released from IARI , it is a tall variety tolerant to measure cowpea diseases and suitable for semi arid regions.**
- ❖ **Vamban : released from vamban center for TNAU, variety suitable for rain fade conditions.**
- ❖ **Indian Institute of Vegetable Research.**
- ❖ **All India Project on Arid Legumes carried out by central arid zone research institute, Jodhpur.**



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THANK YOU