

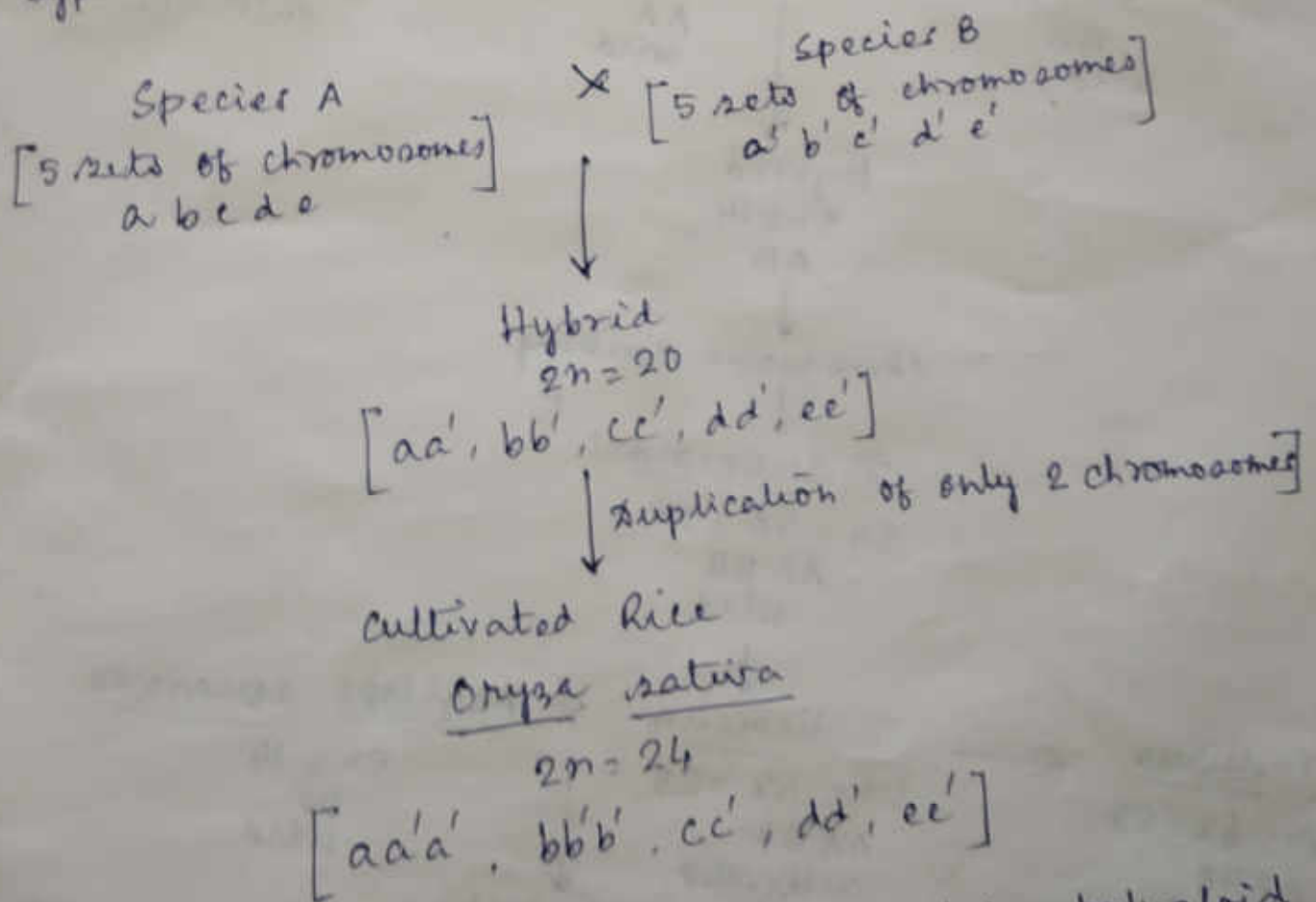
Economic Botany (Rice & Wheat)

- by GD.

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Origin of ~~wheat~~ cereals:

Origin of Rice: Rice (Oryza sativa) had originated probably in 300 B.C. in South and South-East Asia. The cultivated forms might have been arisen from the wild species of rice like O. perennis. From India rice moved to China and to Africa and America where during domestication three different forms have been originated: indica, japonica and javanica. During domestication many morphological, physiological changes have occurred, starting from adaptation to habitat of normal lands and open sun to the shady swamps. Change in leaf shape and size, grain character and other plant type characters differentiated O. sativa into three forms.



Origin of cultivated rice, a secondary polyploid with basic chromosome no. 5.

(2)

Morphology of Rice (Oryza sativa):

Oryza sativa belongs to the family Poaceae. Plants are annual or sometimes perennial herbs.

Leaves flat, linear, acuminate with 2-partite, lanceolate, ligulate.

Inflorescence spikelets, 3-flowered, lower two florets are represented by two empty lemmas; fertile lemma laterally compressed, finely granulate, hispid, ciliate, coriaceous, usually 3-5 nerved, awnless or with awns of variable length; palea as long as lemma, keeled.

Flowers bisexual, lodicules 2, bi-lobed, semifleshy; Stamens 6, filaments capillary.

Style short, stigmas feathery and laterally extended.

Fruits caryopsis, oblong, angular; free or adnate to the lemma and palea.

Processing: The crop is harvested when the "ears" are nearly ripe and the colour of the straw is still slightly green. Crop is cut with sickles by farmers, dried in the field for 2-4 days. Then the crop is stacked in the threshing yard for a week and then threshed either with sticks, or by beating against a wooden log or treading the entire crop under the feet of bullocks. Threshing is also done by pedal or power thresher. Finally the husk is removed by pounding method or by rice hullers. cleaned, unhusked paddy is dried and stored in jute bags and granaries.

(3)

Uses :

- i) The grain is used as food.
- ii) The rice straw is used as cattle feed and for making straw boards, mats and papers.
- iii) Rice bran oil is used in cooking and for making soap and cosmetics.

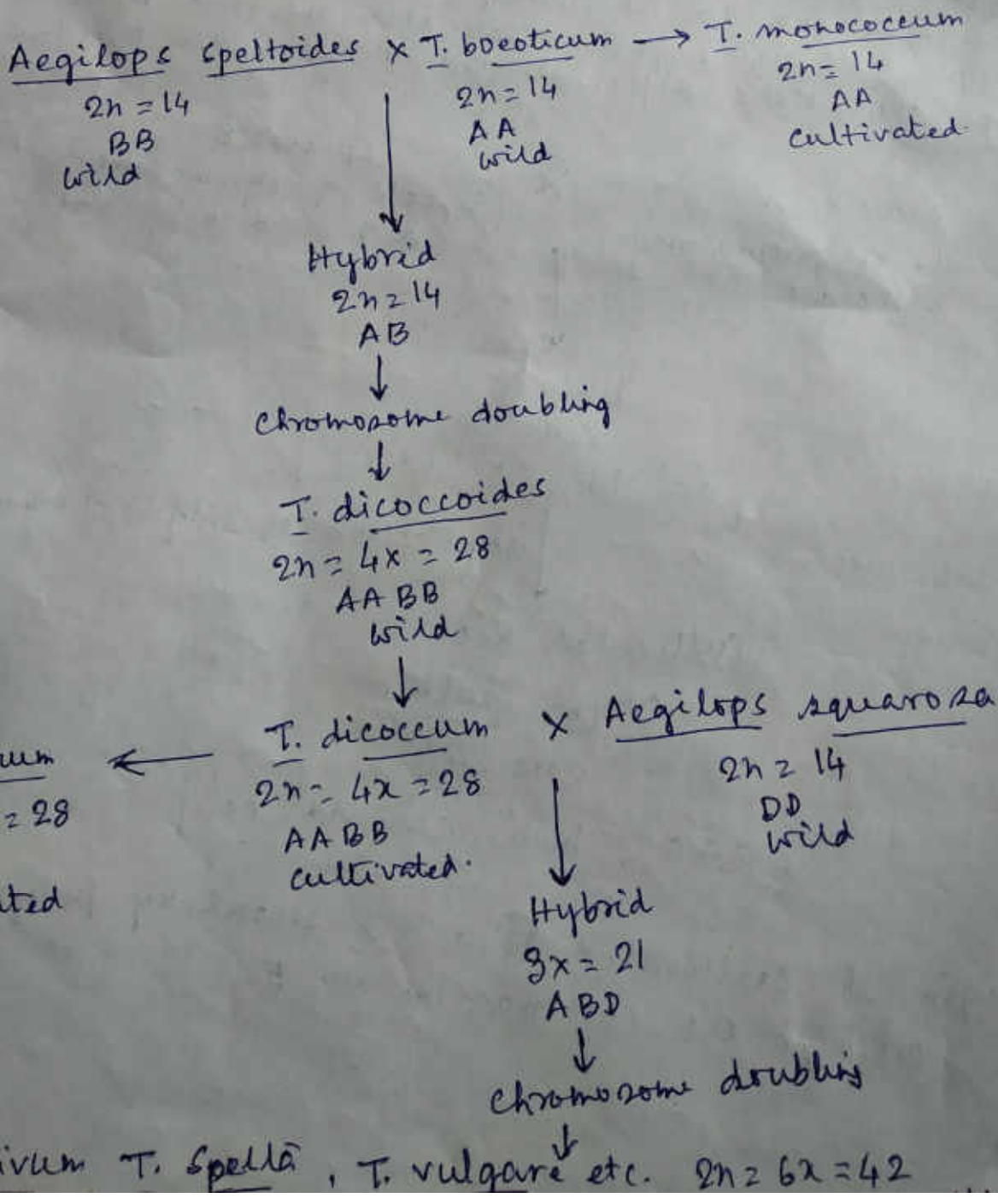
* Origin of tetraploid and hexaploid cultivated wheat from their wild ancestors.

(4)

Wheat

Origin of wheat :

Triticum might have been originated about 6000 years ago in Afghanistan and South Western Himalayas and then moved with man westwards and eastwards. In total four species of Triticum is cultivated in India: T. durum, T. aestivum, T. dicoccum and T. turgidum which are allopolyploids. During domestication the plant type has got changed with its major changed character in non brittle rachis.



Morphology of Wheat :

Triticum aestivum L. is the botanical name of the bread wheat plant. It belongs to the family ~~Gramineae~~ Gramineae (Poaceae).

Plant is annual herb. Leaf blades linear, flat, auricled.

Inflorescence - erect spikes; spikelets solitary, sessile, laterally compressed, 2-several flowered. Glumes ovate, sub-equal, persistent, often unequal sided, obtuse or shortly awned.

Lemmas oblong, ventricose, muticous or 1-3 awned; palea equalling the lemma, 2-keeled. Lodicules 2, entire, ciliate. Stamens 3, styles very short.

Grain oblong, ventrally grooved.

Processing :

The crop is harvested when the grain is deadripe and the straw is golden yellow and brittle. Harvest begins in mid February and continues till April, depending on variety. Plants are cut by ~~scie~~ sickle. Harvested grains are then threshed by treading under the feet of cattle on a threshing floor or by pedal and power threshers. Next winnowing is done with winnowing baskets.

Thoroughly dried grains should be stored in moisture-proof and fumigated store rooms.

(6)

Uses :

i) The whole-meal flour is used in making ordinary and loaf-bread, biscuits, maida, sooji and other confectionary.

ii) The wheat straw chaff is fed to cattle.

iii) Wheat straw is also used in the manufacture of paper.