

268. Although fertilization and fruit set are the two major results of pollination, there is still another interesting but uncommon effect called **metaxenia**: the direct influence of pollen on the maternal tissues of the fruit. Ex: Datepalm.

269. Water requirement- 1800 – 2200 litre and 25 litre/ day through drip

230. Thickness of black mulch- 100 gauge.

231. False bloom or blossom blast is a disorder of Cranberry.

232- Sour orange- highly susceptible to citrus tristiza.

233. Nurse Grafting – Chestnut- Dormant scion on recently germinated nuts.

234- Devoid of root hairs – Mangosteen, blue berry, cran berry and citrus

Fastest method of carrot peeling : Lye peeling

235 Share of Banana (32.6 %) and Mango (22.1 %) in total fruit production in India

236 Walnut propagation: Patch budding & Tongue grafting

237 Fig Chromosome number: 56

238 Loquat propagated by Air layering (Highly successful) & Inarching (common)

239 Oilpalm origin: Africa

240 Rubber tapping depth: < 1mm

ARS-2013

1. Pineapple is propagated through – slips- **Best planting material or commercial one?**
2. Colt and Mazzard are the rootstocks of cherry *colt and mazzard are cherry*
3. Palmate is a modification of **central leader training system**
4. Multiple and bed row system is widely practiced in – **apple**
5. Vikram is an acid lime seedling released by PDKV Akola.
6. Pusa Nanha is a mutant papaya developed using **gamma rays**
7. Dwarfing rootstock of plum is Pixy → *pixy - plum rootstock*
8. Sunheri is a cross between **Golden Delicious x Ambri**
9. Plastic materials used for protected structures should be **all the above**
10. Spongy tissue in mango is **inheritance - Recessive**
11. Vapour heat treatment in mango should be **53°C**
12. Blossom end rot is a deficiency caused by **Ca deficiency**
13. Ca deficiency is expressed in **young leaves**
14. Secondary centre of origin of mangoes is **Brazil – Highest productivity- 15.2MT/ha**
15. Fruit crops grown other than its growth place like fruit research stations is **in situ conservation**
16. Alcohol content in cider **4-6%**
17. Dwarf pyramid shape is a modification of **spindle bush**
18. Two arm system with 60° angle system **Tatura trellis**
19. In dark reaction CO<sub>2</sub> ends in **sugars**
20. Arka Aruna is cross between **Banganapalli X Alphonso**
21. Chinese origin of ber species – **Z. jujube**
22. Irradiation in mango is for **fruit flies**



23. Which of the following is not associated with apple production **ring spot virus**
24. How much g of  $CaCl_2$  is need for preparation of 200 ppm of 100 lit solution - **2 g**
25. 0.5 g of salt in 50 lit of water gives **100 ppm**
26. Apple apomixes - **Facultative**
27. Rootstock resistance to viruses diseases - **EMLA**
28. Grapes rootstock resistance to nematode and salt is **Dog Ridge**
29. Kiffin system in grapes was introduced by William Kniffin from France
30. Dollar earning nut crop **cashew nut**
31. RFLP, RAPD and AFLP markers are used for identification of unique characters... **all the above**
32. Haploid cells were evolved from explants **anther culture**
33. The non-germ cells generated - **somoclanals**
34. The expression of variation from the explants is **Somaclonal variation**
35. IPR is not for **Stability**
36. IPR is not for **documentary maintaining**
37. Ripening is associated with **Amylose**
38. Which of the following will not come under the pine apple group - **Pandora**
39. Arka Amulya is a cross between **Seedless X Allahabad Safeda**
40. Hybrid cultivars of pomegranate - **Mirdula**
41. Polyembryony is found in **Citrus + Mango**
42. Gene expression of ripening is not characterized in **Litchi**
43. Citrange is a cross between **C. sinensis X Poncirus trifoliata** - *Citrange*
44. Fruit crop cultivated under protected structure world wide - **Strawberry**
45. Fruit crop stored under cold storage condition for long term is **apple**
46. Drip irrigation in banana save water upto **50-60 %**
47. Fertilizer suitable for drip irrigation **aqueous ammonia** *for irrigation aqueous ammonia*
48. Para sexual hybridization - **cybrids** → *perisperm hybridization*
49. Strawberry cultivation is not suitable under **undulated hilly region**
50. Duration of pineapple from the time of planting to anthesis and fruiting **10-14 months**
51. requires frequent pruning - **plum**
52. Which type of plum requires pruning and berry thinning - **Japanese plum**
53. Pusa Urvashi is a cross between - **Hur X --**
54. Abcission acid responsible for **leaf senescence**
55. Most stable sex form in papaya - **female** *Stable sex form in papaya is female*
56. *Euvtis X Muscadinia* - **sterile**
57. Additive gene action in mango - **fruit size**
58. Which of the following is not a Genetic transformation method - **X-ray mediated method**
59. Transgenic variety of papaya - **Rainbow** - *Rainbow transgenic variety of papaya*
60. High Gate is a mutant of **Gross Michel** - *Banana*
61. Off season Flowering can be induced by **Paclobutrazol** *mango*
62. Genetic constitution of Golden Finger FHIA hybrid - **AAAB**
63. Skin colour in Litchi is due to **Anthocyanin**
64. Non climacteric fruit - **Litchi**



65. The reason for alternate bearing in mango - **imbalance between veg. and reproductive growth**
66. Suitable fertilizer for fertigation is **aqueous ammonia** → for fertigation
67. Fertilizers in Fertigation can be scheduled based on **plant nutrient requirement**
68. Banana special practices - **denavelling** → Removal of male flowers
69. "Florida" is a scab resistant variety of apple from - **USA**
70. Which aspect is not related to regulating flowering - **Weed control**
71. Juice can be dried in **Cabinet drier**
72. **FSD** flowering habit in **Avocado**
73. Persimmon or Pecan - dioecious flowers are pollinated through - **Bees**
74. Pineapple - explant for tissue culture - **Leaf base**
75. Kagzi lime is the indicator for **tristeza virus**
76. During storage fruit should be stored under **low O<sub>2</sub> condition** → 3% O<sub>2</sub> in MAI
77. Waxing of fruits reduce the **transpiration process** → 8% CO<sub>2</sub>
78. Recommended level of **KMS** for fruit juice - **350 ppm**
79. Pineapple is the native of **Paraguay (Brazil)**
80. Most suitable ratio of C and N for fruiting is **CCC:NN 3:2**
81. Which acts as an ethylene absorbent - **KMnO<sub>4</sub>** → potassium permanganate
82. For regulation of fruiting in old orchards **top working** is done
83. Important aspect of Jelly is **Pectin**
84. Goma Priyanka is a cultivar of **Jamun** → *Eugenia jambolana* → Jamun
85. Most of the amla cultivars are released from **Narendra Dev Univ. of Agrl. And Tech. Faizabad** → **NDUAT - Amla**
86. Fruit quality if determined by **K**
87. Organic Phosphorous solubilising Bacteria **VAM**
88. Fruit crop not belong to Anacardiaceae Family - **Pecan Nut** → Juglandaceae
89. Movement of Auxin is **Basipetal** ↓
90. Low temperature treatment of seeds - **stratification** → breaking dormancy
91. Allopolyploidy is found in **Vellaikollumban** → allo tetraploid
92. Loquat - **Gametophytic self incompatibility** -
93. Fruit crop rich in Iron - **Karonda** - Fe
94. Pomegranate training system - **Multi stem**
95. Principle of zero energy cool chamber - **evaporative cooling**
96. Fuzzy Nectarine is also called as **dry Peaches** → prunus persica
97. Apple is a **Long Day plant** ✓
98. Mountain Papaya - **V. candamarcensis**
99. Sexually propagation, Recalcitrancy of seeds is considered as a major problem **Papaya**
100. *In situ* conservation the propogules are stored in liq. N<sub>2</sub> at the temp. of **-196°C**
101. Ber pruning done at **March and April**
102. Saline soils are present in the **near to coastal region**
103. Which fruit having high caloric value in 100 g of edible portion - **Almond**
104. Aroma responsible for over ripe in Banana - **Isopentanol** - > Hexanol - mature  
B. Hexanol → ripe  
Isopentanol - overripe
105. Largest producer of litchi in india - **Bihar**
106. Chemical used for bud break in grapes - **HCN**

HCN → Bud break in grapes

4/1/2021

Kagzi lime



coat protein technique to create resistance - Papaya

107. HDP is common in Guava/Mango
108. In case of Sigatoka leaf spot which is wrong - Gross Michael is resistance to SLS
109. Coat protein technique is followed to create resistance in Papaya
110. Sugar acts as an osmolite
111. Percentage of fruit set in mango less than 1% : 1 %
112. Colour breaking stage in grapes is Veraison
113. When *Z. mauritiana* budded in *Z. nummularia* gives dwarfing effect
114. Most of the Mandarin has diversified in which mountain region - NE mountain region
115. Choke throat in Gross Michlae is due to Low winter temperature - *physiological disorder*
116. Maturity indices for Mandarin is TSS: Acidity
117. Which Apple cultivars is not belong to India - Gloster
118. Ideal edible portion on mango should be 3-4
119. Haploid chromosome number of Apple - X=17
120. Double sigmoid curve is observed in (stone fruits- peach, plum, fig, raspberry, blueberry, grape, olive, guava, almond)
121. Mango species which can't grow under other than its growing condition
122. Banana dwarfness is controlled by dominant gene
123. Skin colour in mango controlled by poly genes
124. *Mangifera cochincinnensis* grown in which region - western ghat and Andaman nicobar
125. Apple cultivar which is having high export quality - golden delicious → *Export quality*
126. Fire blight resistance root stock in apple - crab apple.
127. Removal of suckers is commonly found in Hazelnut
128. Quince C is a dwarfing root stock used in Pear
129. IPR issues for tree species can be maintained upto 18 - 25 years
130. Rooting media got increase in weight upto 10-20 % due to imbibition of water
131. Papaya cultivated under green house condition for wind, PSRV, Tall growing and Temperature
132. The height of Green House should be at \_\_\_\_\_ for mango and papaya
133. If the dwarfness is controlled by single gene the dwarfness can be overcome by
134. Cold climate in subtropical region will not create tolerance against pest and disease
135. In canning the head space provided should be 0.3-0.5 cm
136. The buds from the temperate crops should be stored at
137. After pruning in the previous season how much % of light should be required for next season flowering - 20-30%
138. Size of CFB for grapes is -
139. Bunch covering in banana increase the yield up to percentage 6-7%
140. Enzyme involved in change from protopectin------(protopectinase)pectin-----pectinic acid (PME) -

## Crop wise

### Strawberry

1. One of the delicious and nutritious fruit , non-climacteric
2. *Fragaria ananassa* is an octaploid ....  $2n=8x=56$  ( $x=7$ )...cross of *F. virginiana* X *F. chiloensis*
3. It is a evergreen, perennial, creeping herbs
4. Fruit..... Aggregate....from fleshy receptacles with many seeds (achenes)
5. *F. vesca* is a diploid and *F. moschata* is a only hexaploid sp.
6. Inflor. is terminal cymose...has a dichotomic branching and flowers are hermophrodite and pistillate
7. Day nutral....fern. selva. tribute, trister
8. Hood and Benton resist to red stele, lateglow is verti. wilt resist
9. Temple (cultivar) resist. to phythophthora fragariae
10. Genome size of fragaria vesca 2x is 240 Mb and 34809 genes
11. Flavour of fruit due to volatile compound.....ethyl esters
12. Green nd ripe red achenes nd leaf tissue of strab. Contain ellagic acid (anti mutagenic and anti carcinogenic)
13. Temp. 20-23<sup>0</sup>C (in night 7-13) , Photop. (SDP) and light intensity
14. *F. vesca* is photoinsensitive
15. Propagated by runners which are raised in two system...isolated block system and isolated strip system
16. Production of runners high at 23<sup>0</sup>C
17. GA<sub>3</sub> inhibited flowering but stimulate runner production
18. Cold storage of runners at -2.2<sup>0</sup>C for 6.5 month.....polythene bags 80 X 70 cm
19. Planting systems are matted row (45X90cm), spaced bad system (30-50 p-p and 90-100 R-R), and Hill row.
20. Aggregate fruit formed by ripening together of several ovaries belong to the single flower and adhering as unit on common receptacles
21. Achenes are one seeded indehisent fruit
22. Usually harvest when 50-75% skin develops color
23. Root knot nematode and verticilium wilt problem



## GRAPES

1. Pinot noir genome has been sequenced *see file*
2. Red globe, fantasy seedless, Autumn royal are US varieties, now growing impo. Under south Indian condition
3. Export varieties....TS, Tas-A-Ganesh, Sonaka, A17/3 (green seedless) and flame, sharda, fantasy seedless (coloured)
4. New potential in export....Italia and Red Globe
5. Heat units for grape is 1600 to 3500 degree days
6. Propagated by hardwood cutting of one year old cane at time of pruning
7. Best time of grafting (soft wood) and budding (chip) is spring (bark slippy)
8. Nematode resist RS Dogridge (V. Champini), 1613 (V. solonis X othelo1613), freedom, Harmony
9. Phylloxera (root feeding aphid) resist. RS Riparia Glorie, St. George, 99-R
10. Season of planting grape cuttings.....Oct to Janu (in semi tropical) and Feb to March (ST & Temp.)
11. In-situ grft or budding best times is September (NRC)
12. Espilier system of training system similar to cordon
13. Kniffin system is also called as 4-cane system
14. Overhead trellis system is a telephone system
15. Bower\Pandal\Pergola\Arbour suitable for vigour's varieties (A. shabi, Bhokri) and widely adaptable in tropical region
16. Flat Roof Gable system is an extended Y and bower system combining
17. Pruning in grape....1) under T & ST grape vine contin. grow, to imposed pruning condi. to neccs. movement of nutrients from older to new growth ...2) In T condition strong apical dominance sprouting of fewer buds
18. Back pruning of buds in M-May( vegetative growth) and forward pruning in Oct.-
19. Nov. (Fruiting ). In AP, MH, KR
20. In Tamilnadu harvest 5 crops within 2 years, pruning twice a year, Dec.-Janu and May-June.
21. In North India, due to winter, vines enter in dormancy so pruning is done in Janu.to mid Feb. And march to april flowering.

22. Keeps 10 leaves at least after bearing bunch not 18 and bearing shoot should be 45° from the arm to avoid direct sunlight contact. (NRC)
23. Don't girdling before 3-4mm berry size and thinning should be completed up to 6-7 mm berry stage.
24. Chemical for bud breaks..... hydrogen cyanamide ( 20-40 mNlt) and thiourea (2%) increased bud break (seedless)
25. GA<sub>3</sub> Increased berry size and diameter, MH induced sterility
26. 3-4 mm berry size GA<sub>3</sub> @40 ppm + CPPU@ 2ppm increased berry size (NRC)
27. Technique of improving quality....pruning, thinning, ringing or girdling, PGR
28. Bud burst in North India in Feb- March and Oct.- Nov. In South India. And fruit bud initiation 20-30 days after bud burst.
29. Stenospermocopy( seedless) in grape except Black Corinth (stimulative parthenocarpy).
30. Heat unit or growing degree days (GDD) expressed as by detecting the base temperature (10°C) from the mean temperature of max. and mini. Recorded daily from blooming to ripening stage and summing up of these values.
31. Optimum TSS:Acid ratio in grape.....20:1
32. For export quality berry size 16mm, TSS 17 B<sup>0</sup>, Bunch weight 300-750 kg
33. Grape gourds (SO<sub>2</sub> pad) for storage
34. Utilization of grape in India....Table purpose- 76-79 %, Export- 2.96%, Raisin- 17-20%, Juice- 1.5%, wine- 0.5

#### BANANA

1. Which banana plantain consist of complete inflorescence False horn/French/French horn/true horn
2. Pollen viability in banana high in which ploidy level 2x/3x/4x/
3. In banana parthenocarpy is governed by .....gene
4. Dominant gene/recessive gene/polygenic
5. Introduce variety of banana which is resistance to BBTV.....Lady finger → AB
6. INIBAP located at.....France
7. Stomata density is high in which ploidy level of banana
8. 2x/3x/4x
9. Which banana cultivar genome has been sequenced.....DH-Pahang....double haploid (homozygous)....M. acuminate sp. Malaccensis
10. Size of diploid banana genome is .....613 Mb



11. Genome size of *M. balbisiana* is 523 Mb
12. Dwarf Cavendish (Gross mische) susceptible to leaf spots.
13. Red banana highly susceptible to BBTV, fusarium and nematode.
14. Virupakshi (Hill banana) is highly susceptible to BBTV
15. Nendran is susceptible to BBMV
16. Monthan and Bluggoe are used culinary purpose.
17. Pliody level of FHIA 01-AAAB, 02-AAAA, 03-AABB, 21-AAAB
18. FHIA-01 (Gold finger) resist to black sigatoka and fusarium race-1,4
19. Banana can store at  $13^{\circ}\text{C}$  RH-85-90% for 3 weeks.
20. New product prepare from banana pulp... sip-up without pastu., store. 12 days at  $0^{\circ}\text{C}$
21. Hardiness (drought), tolerance and starchiness increase with increased the level of B genome.
22. In banana inflorescence trying to emerge through the top of the pseudostem is inhibited by leaf petioles is called choke throat
23. Yellow pulp malady in banana is associated with Nitrogen and Potassium nutrients
24. Neervazhai is a serious disorder in Nendran  $\rightarrow$  Neervazhai  $\rightarrow$  Nendran
25. Suckers suitable for propagation of banana is sword suckers
26. Karpuravalli is highly susceptible to wilt disease, tolerant to leaf spot disease
27. Exogenous application of ethylene @ 100 ppm induces ripening in banana
28. Bunchy top virus is transmitted through aphids - *Pentalonia nigernervosa*
29. Bunchy top is a serious viral disease in Hill banana
30. A banana bunch usually takes 90-120 days to mature after shooting
31. Boron deficiency leads to malformed with incomplete leaf lamina

## PINEAPPLE

1. *Ananas comosus*, bromeliaceae, Brazil,  $2n=2x=50$ ,  $3x=75$ , monocot perennial herb, CAM plant, short day plant
2. Two genus - *Ananas* -  $2n=2x=50$ , slips produce but no stolon and *Pseudoananas*  $4x=100$ , no slips, humid tropical crop, suspt to water logging and frost, shallow rooted crop
- A. *monstrosus* ...no leaf formation on the fruit (crownless), A. *Paraguazensis*...curved leaf, A. *Lucidus* and A. *erectifolia*.....spineless and fibre potential
3. Self-incompatibility, fruit developed parthenocarpically

4. Syncarp or multiple fruit.....fusion of the all fruitlets developed from the individual flower. Mature 5-6 m after flowering
5. 135 species, classif. 5 groups
6. Cayenne group ( Kew, smooth cayenne, ), Spanish group (singapore. carbezona ), Queen (Queen, Riply Queen, Mauritius), Abacaxi , Maipure
7. Indigenous.....Jaldhup (alcoholic flavour), lakhat (sour test)
8. Amrita.....Kew X Riply Queen.....deve.by KAU, PAS
9. MD2 .....resist to internal browning
10. Propagation...suckers (17-18m), slips (best,18-20m), crown(22-24m)
11. D leaf (diagnosis) indicate the most recently matured leaf with maximum physiological activity
12. Uniform flowering....Ethaphon/Ethrel 10-20ppm, NAA @300ppm 2-3m after fruit set increased the size of fruit
13. Harvest 4-5 m after flowering, non climactaic fruit
14. Uniform color devep. and early ripening ....ethephon (500-2000)
15. Cold storage 10-13 c RH-85-90, 3-4 week
16. >90% world pineapple processed and in India 10%
17. Kew is ideal for canning
18. Leaf 1.2-2% fibre extaction
19. Mealy bugs (pseudomonas breviceps) serious pest and vector for wilt virus
20. Internal browning (chilling injury), heart rot, nematode problem
21. Multiple crown....flattening of the top portion of fruit....common in cayenne group
22. Gemetophytic self-incompatibility....inhibition of pollen tube of pollen tube growth in upper one third of style (governed by single gene locus with multiple alles)
23. Smooth cayenne and suger loaf are mutant ( Invitro shoot tip 45 gamma rays)
24. Smooth cayenne.....nematode, wilt nd fungal resistance
25. ACC Synthase (ACACS2) gene involved in initiation of flowering in pineapple, silencing of this gene can causes delayed in flowering
26. Inflo. Is spike, developed from stem apical meristem, flower open from base to top
27. Stage of inflo. Emergence is called Red heart because of pink to bright red peduncle bracts

#### DATEPALM (tree of life)

1. BN. *Phoenix dactylifera*, Palmaceae, Iraq, 2N=36, Monocotyledonous, dioecious

Anil Rana

[www.k8449r.weebly.com](http://www.k8449r.weebly.com)