

RESEARCH CRITERIA FOR INTRODUCING NEW FRUIT AND NUT CROPS

By
M.H. Pannhwar

Failure of the Government research organisation to promote agriculture the world over is going to lead to entry of private sector in to this field under encouragement from the Governments in near future. This has already started in Western Europe and Northern America. Australia retrenched 600 out of their 2400 horticulturists 4 years ago. Of all researches most sophisticated is introduction and breeding of new fruits and nuts. Those interested have to know some fundamental requirements of this type of research.

Following should be qualities of any fruit adopted for new introduction and propagation.

- i. Good flavour, acceptable by public in general; free of objectionable fibres or terpene smell.
- ii. Very high yield per tree and regular period.
- iii. Early fruiting, short juvenile period.
- iv. High prices per unit weight/volume.
- v. Growing habit: medium, upright tree preferred to very spreading and extremely upright and spineley trees. Dwarf trees preferred as small space per tree can give large number of trees per acre and high yield.
- vi. Fairly open foliage density; allowing aeration and radiation to pass through or extremely open foliage.
- vii. Leaf colour guaranteeing adequate photo-synthesis. Pale and chaotic colours do not allow adequate photo-synthesis as compared to very dark green colour leaves.
- viii. Long storage quality after harvest to allow fruit to be shipped by sea and pass through market chain to the consumer.
- ix. Tree anthracnose should either be nil or negligible and fruit anthracnose should be totally absent. Stem anthracnose should be nil or negligible.
- x. Premature fruit splitting should be nil or negligible.

- xi. Premature fruit drop should be nil or negligible.
- xii. Susceptibility to fruit fly at the time of maturity or early should be nil or negligible.
- xiii. Fruit instead of being in clusters should be open spaced on pendule with two or more fruits on it.
- xiv. Very short flowering period to produce fruit of uniform size at maturity and reduced harvest time.
- xv. A high percentage of flower should be females or hermaphrodites.
- xvi. Good taste.
- xvii. Large size fruit with very small stone or seeds.
- xviii. Evens of size.
- xix. Skin should be thin and form very small percentage of the total weight.
- xx. Fruit colour should have eye appeal and be attractive with a good blush.
- xxi. Fruit ripening should be even.
- xxii. It should have long harvesting period of about 4 weeks or more to ease marketing without causing glut and high labour requirement in a short period.
- xxiii. While fruit ripens on the tree, fruit-fall should be minimum.
- xxiv. Ripening of fruit after harvest, should take 10-15 days to allow transport to long distances and through export market chain.
- xxv. Deterioration of variety with time should not exist.
- xxvi. Tree should have resistance to fungal diseases at time of flowering, fruit formation and marketing chain upto consumption.
- xxvii. Fruit should be free of physiological break downs in the flesh.
- xxviii. Fruit should ship well.
- xxix. Stone should not be more than 10% of total weight of fruit and pulp to total weight ratio should be very high.

- xxx. It should have good transport characteristics.
- xxxi. Very early or very late in the season to capture market.
- xxxii. High market price.
- xxxiii. High returns per unit of land.
- xxxiv. Ease of harvest i.e., production on low branches.
- xxxv. Open tree to make maximum use of solar energy for high production.
- xxxvi. Non vigorous to produce more fruit per unit area of land rather than wood.