The Cavendish subgroup is the most widely grown group of bananas since it includes the cultivars that dominate the international trade in bananas (e.g. Grande Naine, Williams and Valery) and as such have set the standards in terms of taste, yield and post-harvest characteristics expected of an export banana. They are also increasingly grown for domestic markets\(^1\). In 2016, Cavendish cultivars accounted for 51% of the global production of bananas, which includes the 34% produced for domestic markets and the 17% grown for export\(^2\). Their domination of the international trade started in the late 1950s when they were selected to replace Gros Michel, whose susceptibility to Fusarium wilt precluded its cultivation in large commercial plantations. Although Cavendish cultivars are resistant to the race 1 strains of the fungus that causes the disease, they are susceptible to tropical race 4.

Cavendish cultivars belong to the AAA genome group, which includes all the cultivars that have three copies of each gene-bearing chromosome. The A stands for the wild species Musa acuminata whose genitic signature is found in the majority of cultivated bananas (see Domestication of the banana). Triploid bananas are for all practical purposes sterile, but diversity has been, and continues to be, created by farmers propagating natural mutants\(^3\). The Cavendish subgroup is essentially composed of
The name Cavendish is derived from the Latin name given in 1837 to a greenhouse specimen in honour of the owner of the plant, the Duke of Devonshire whose family name is Cavendish. The British botanist Ernest Cheesman gave the name Cavendish to the group of banana plants at the Imperial College of Tropical Agriculture in Trinidad that was connected to the greenhouse specimen “by a series of intergrading mutant forms”.

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Morphological characteristics

The cultivars in this subgroup are difficult to tell apart and exhibit a gradation in height from the shortest (Dwarf Cavendish) to the tallest (Lacatan). The fruits are long and slightly curved. A persistent floral relict is attached to the fruit apex, which is moderately tapered. The bunch is cylindrical, with 10 or more hands.

Relationship to Gros Michel

Molecular analyses of accessions in collections have revealed that Cavendish and Gros Michel cultivars are half-siblings, that is they have a parent in common, the one that contributed both copies of its genome (triploid bananas are derived from a cross between two diploid parents — one which normally passed on one copy of its genome, whereas the other contributed both copies, a phenomenon called meiotic restitution). The latter has been identified as a cultivar in the Mlali subgroup, a group of diploid bananas currently found in East Africa only. The closest living representative related to that ancestral Mlali cultivar is Chimoili Kana Nkobo, not Akondro Mainy as previously thought. The parents that contributed one copy of their genome were probably different, but genetically close cultivars from the Khai subgroup.

Host reaction to pests and diseases

Cavendish cultivars are susceptible to Mycosphaerella fijiensis and Mycosphaerella musicola, respectively the causal agents of black leaf streak and Sigatoka leaf spot. They are also susceptible to the banana bunchy top virus — but then again so are all other types of bananas — and to nematodes.

Cavendish cultivars are resistant to the race 1 strains of Fusarium oxysporum f. sp. cubense, the causal agent of Fusarium wilt, but susceptible to the race 4 strains.

Cultivars

Local names and synonyms of Cavendish cultivars in the banana cultivar checklist.
References

1 The hidden side of banana diversity, published 24 October 2017 in InfoMus@’s News and analysis
2 2016 banana statistics published by FruiTrop
4 Musa cavendishii Lamb. published in 1837 in Paxton’s Magazine of Botany and Register of Flowering Plants 3:51-52.

Further reading