= Thomcord =

Thomcord is a seedless table grape variety and a hybrid of the popular Thompson Seedless or Sultanina grape (a Vitis vinifera variety) and Concord grape (a Vitis labrusca variety) . Thomcord was developed in 1983 by Californian grape breeders working for the Agricultural Research Service (ARS) , an agency of the United States Department of Agriculture (USDA) , as part of a test to better understand a new seedless grape breeding procedure .

Its aromatic , " labrusca " flavor is similar to that of Concord , but mellowed by the mild , sweet taste from Thompson Seedless . Thomcord grows well in hot , dry climates , ripens between late July and mid @-@ August , and tolerates powdery mildew . It is a productive variety , yielding an average of 15 @.@ 1 kg (33 lb) of grapes per vine , but has produced as much as 30 to 32 kg (66 to 71 lb) per vine in grower trials . The berries weigh between 2 @.@ 72 and 3 @.@ 38 g (0 @.@ 096 and 0 @.@ 119 oz) and have a medium @-@ thick , blue @-@ black skin that adheres to the fruit , unlike Concord , which has a thick skin that can slip off the pulp easily . The aborted seeds in the fruit body are relatively small , but larger than those in Thompson Seedless .

The plant is not restricted for propagation and distribution . Virus @-@ free propagation material is available from the Foundation Plant Services (FPS) at the University of California , Davis , and its genetic material is archived at the National Plant Germplasm System . After 17 years of testing , it was declared ready for use in 2003 . It is currently available in supermarkets .

= = Description = =

Thomcord grape is a hybrid of Thompson Seedless grape (Vitis vinifera , or Sultanina) , which is popular in supermarkets during the summer , and seeded Concord grape (Vitis labrusca) , commonly used to make grape juice and jelly . It is a plump , juicy , seedless table grape and is slightly firmer than Concord . Thomcord has a blue @-@ black skin with medium thickness and a whitish bloom . Unlike Concord , whose tough skin separates easily from the fruit , Thomcord has a more edible skin that clings to the flesh , much like Thompson Seedless . It has an aromatic flavor , similar to the Concord in taste (" labrusca ") , though lighter due to the sweet , mild taste from Thompson Seedless .

Thomcord is suitable for hot , dry growing conditions , more so than Concord and other Concord seedless types . Its adaptability to hot dry climates was derived from Thompson Seedless . It grows well in California 's vineyards , particularly the San Joaquin Valley , just like Thompson Seedless . The plant is tolerant of (but not resistant to) powdery mildew , and is less susceptible to the fungus than Ruby Seedless , but more susceptible than Mars , Venus , Niabell , and Cayuga White varieties . The fungus can affect its leaves , stems , rachis (stem of the grape cluster) , and berries . The grape ripens in the summer (mid @-@ season) , between late July and mid @-@ August .

= = = Production details = = =

Thomcord is a productive variety , with a yield comparable to Thompson Seedless . When two cordons (arms) of the vines are trained horizontally on wires (" bilateral @-@ trained ") and are pruned to remove most of the previous year 's growth (" spur @-@ pruned ") during the winter , it can produce up to 13 ? 16 kg (29 ? 35 lb) per vine , or an average of 15 @.@ 1 kg (33 lb) . In 2002 , cane @-@ pruned vines of Thomcord were significantly more productive than Sovereign Coronation and were comparable to the Venus variety , averaging 21 @.@ 3 kg (47 lb) per vine . Unlike Thompson Seedless , which has its cluster size thinned as a normal production practice , Thomcord 's is not thinned because of its smaller cluster size . The grape clusters range in weight between 259 and 534 g (0 @.@ 571 and 1 @.@ 177 lb) and average 340 g (0 @.@ 75 lb) , have medium to slightly loose tightness (or are " well @-@ filled " , meaning the individual pedicels are not easily visible) , and have a conical shape with a small wing .

Compared with Thompson Seedless , the berry weight and diameter of Thomcord are larger , but cluster tightness is similar . The berry length ranged between 18 @.@ 2 and 18 @.@ 3 mm (0

@.@ 72 and 0 @.@ 72 in) and the diameter ranged from 16 @.@ 7 to 17 @.@ 2 mm (0 @.@ 66 to 0 @.@ 68 in) in tests between 2001 and 2002 . The berries weigh between 2 @.@ 72 and 3 @.@ 38 g (0 @.@ 096 and 0 @.@ 119 oz) , averaging 2 @.@ 85 g (0 @.@ 101 oz) in 2002 , which is on par with Venus , but heavier than Sovereign Coronation , and even more so than Thompson Seedless . The fruit 's size has not been shown to increase appreciably by girdling the vines or by applying gibberellic acid when the berries set .

The aborted seeds of Thomcord are small , but in some years they can become sclerified (a thickening and lignification of the walls of plant cells and the subsequent dying off of the protoplasts) , making them more noticeable inside the medium @-@ soft flesh . There are usually two aborted seeds per berry , which averaged between 14 and 22 @.@ 3 mg in 2001 and 2002 . This varied in comparison to Venus depending on the year and location , was comparable to the Sovereign Coronation , and was significantly smaller than the Sovereign Rose and Saturn varieties . However , as with the other cultivars , it was consistently larger than Thompson Seedless , which had the smallest aborted seeds .

= = = Vegetative description = = =

The mature leaves on the vine have three lobes with open upper lateral sinuses (spaces between the lobes) of medium depth . The main vein is slightly longer than the petiole (stalk attaching the leaf blade to the stem) , and the petiole sinus opens widely . Between the veins on the underside of both the mature and young leaf there are dense hairs that lie flat against the surface . The teeth on the edge of the leaf blade are convex on both sides , medium in size , and short relative to their width . Young leaf blades are dark copper red on the upper surface .

The shoots have at least three consecutive tendrils . Young shoots are fully open and have very dense hairs of medium anthocyanin coloration that lie flat against the tip . The internode of the young shoot is green with red stripes on the front (dorsal) side and solid green on the back (ventral) side .

= = History = =

In 1983 , research horticulturist David W. Ramming and technician Ronald L. Tarailo ? Californian grape breeders working for the ARS , the chief scientific research agency of the USDA ? crossed Thompson Seedless and Concord in order to answer a technical question about a newly developed procedure for breeding novel , superior seedless grapes . The researchers wanted to demonstrate that plants created from embryo culture were derived from fertilized eggs (zygotic) instead of the maternal tissue (somatic) . From 1231 emasculations (removal of male flower parts to control pollination) of Thompson Seedless , the researchers produced 130 ovules using embryo rescue procedures . From these , 40 embryos developed and three seedlings were planted . The original seedling of Thomcord was planted in 1984 in plots in cooperation with California State University , Fresno . It was later selected in 1986 by Ramming and Tarailo and tested in the San Joaquin Valley under the name A29 @-@ 67 , and was introduced as " Thomcord . "

The new hybrid was tested and scrutinized for 17 years before it was declared ready for growers and gardeners and was released on 11 September 2003 . Around 2008 , trials outside of California were just beginning . Thomcord quickly became a hit at farmers ' markets while it was being tested , and it has appeared in the fresh @-@ fruit section at supermarkets . This continued the long @-@ standing success of the ARS ' grape @-@ breeding research in California , which has developed some of the most popular seedless grapes on the market as well as red , white , and black grapes varieties for hobbyists and professional growers since 1923 .

Although it has been called a " sentimental favorite " at farmers ' markets , it is not expected to become a major commercial variety because its flavor is not as neutral as more popular grapes , such as Thompson Seedless , Crimson Seedless , or Flame Seedless . However , Ramming predicted that it would become a specialty item , much like the Muscat varieties , due to its distinctive , Concord @-@ like flavor . Because of its strong reception at farmers ' markets , it could

compete with Concord and Niabell varieties in eastern markets , according to Ramming .

= = Availability = =

The Foundation Plant Services (FPS) at the University of California , Davis indexed Thomcord and found it to be free of known viruses . The FPS offers certified virus @-@ free propagation material . The FPS also deposited genetic material in the National Plant Germplasm System , which offers material for research , including development and commercialization of new cultivars . The ARS does not offer Thomcord plants for distribution .

Thomcord is a public variety and is not restricted in its propagation and distribution .