

Research and Development for Commercial Applications

2026

The outcomes of research and development for a practical cultivar, a processing product, and a new technology by Faculty of Agriculture, Kagawa University, are utilized widely in local industry and society.



Wine-Brewing by Breeding of New Variety “Kadaino R-1”

When temperature exceeds 25 degrees Celsius, the anthocyanin accumulation in rind of a fruit is inhibited in major grape cultivar such as “Kyoho”. Wild variety “Ryukyuganebu” distributes over subtropical Amami Islands and Ryukyu Islands, has a dark color of the rind of a fruit even under a high temperature. The new varieties were crossbred with this “Ryukyuganebu” and “Muscat of Alexandria”, and “Kadaino R-1” accumulating a high anthocyanin even under high temperature was selected and introduced for brewing of wine with a superior polyphenol content and manufactured as the Kagawa University brand wine.



“Ryukyuganebu” *V. ficifolia* var. *ganebu*

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“Muscat of Alexandria” *V. vinifera*

Combination of Crossbreeding



“Kadaino R-1”



Kagawa University Brand Wine

The First Prefecture-originated Rice for Sake-Brewing: “Sanukiyoimai”

In 1995, breeding program of rice varieties suitable for Sake brewing in Kagawa was started by requests of the Kagawa brewer cooperation. Crossbreeding of "Ohtose" and "Yamada-Nishiki" was continued for ten years, and finally the team of Kagawa University, Kagawa Prefecture, and Kagawa brewing cooperative selected and registered “Sanukiyoimai” in 2006, "Sanukiyoimai" shows excellent characters such as a large grain, few protein contents, and a high yield. All Sake-brewing makers in Kagawa prefecture use “Sanukiyoimai” now.



“Yamada-Nishiki”
“Sanukiyoimai”
“Ohtose”



Kagawa University, Faculty of Agriculture, and Kagawa Agricultural Experimental Station started a joint breeding program in 2006. After 8 years of Kiwifruit breeding with wild variety "Shima Sarunashi" originated in Japan, the breeding program brought 5 cultivars with superior characters which are easy to grow and their fruits are a half size comparing with those of regular Kiwifruit cultivars and have high sugar content with 17-18%. These cultivars were named as "Sanuki Kiwicco[®]" as the brand name and commercialized on January 2014 mainly in fruit shops carrying high grade fruits in major department stores in Tokyo, Osaka, and Kagawa prefecture.



Fruits package of "Sanuki Kiwicco"



Natural view of fruits on the tree



Content analysis

Olive product: olive leaf extract for health-oriented food products

Olive cultivation and development of olive-related products are the regional peculiarity of Kagawa prefecture. Olive leaf extract powder containing rich polyphenolic compounds is added to multiple food products for contributing a development of health-oriented foods with functions such as an antioxidative property.



Olive in Shodo island



Bread with olive extracts (Left and right)



Olive leaf extract powder



Pasta with olive extracts

Breeding of low-chill peach varieties with high eating quality

Laboratory of Fruit Crops, Faculty of Agriculture, Kagawa University registered the white-fleshed variety 'KU-PP1' in 2014 and the yellow-fleshed variety 'KU-PP2' in 2016. These were selected from the cross-seedlings between the peaches of subtropical origin, which have lower chilling requirement for breaking bud dormancy in winter, and Japanese high chilling peaches, which have excellent eating quality.

These varieties have much lower chilling requirements than ordinary varieties. This allows them to flower two to three weeks earlier than ordinary varieties and to ripen fruit earlier, resulting in harvest in mid-June, the same time as very early varieties. The new variety has a higher sugar content due to the earlier flowering and longer growing period of the fruit.

Fruit of these varieties harvested in early June are less susceptible to night moth damage and high temperature stress in summer. In addition, earlier release from bud dormancy of these varieties enables the early forcing culture in greenhouses, and adaptation to the conditions of warm winter due to global warming.

Currently, growers in Okayama, Aichi, and Chiba prefectures are conducting economic cultivation or test planting.



Forcing culture of 'KU-PP1' and 'KU-PP2' in greenhouse



Branch condition of 'KU-PP1'(top), 'KU-PP2' (middle) and 'Hikawa Hakuho'(bottom) on March 24th, 2014



Fruit of 'KU-PP1'(white flesh) and 'KU-PP2' (yellow flesh)