



guam
TARO
GUIDE



A large, stylized illustration of a taro plant in shades of green, featuring broad leaves and a central stem with a developing corm, positioned behind the title and text.

Taro

The scientific name of taro is *Colocasia esculenta* (L) Schott. Taro is known by many other common names like kalo, dalo, suni, sawan, malanga, yautia, cocoyam, dasheen, etc. There are also various similar plants sometimes referred to as taro including giant taro, *Alocasia macrorrhizos*; giant swamp taro, *Cyrtosperma chamissonis*; and American taro, *Xanthosoma sagittifolium*. They all belong to the Araceae family in terms of taxonomy.

The proper taro, *Colocasia esculenta*, is considered the preferred one in terms of taste. Taro is very, very important in the Pacific region and world annual production reaches around 9 million tons; it is a staple crop not only throughout the Pacific, but also in Asia and Africa. Traditionally taro has been grown in Pacific islands for thousands of years because it is a root crop and can survive severe storms, when

other above-ground food plants are destroyed; evidence exists of wetland taro grown in Papua New Guinea 9,000 years ago. Pacific islanders have also developed ways to prepare taro that prolong its shelf life; poi in Hawaii is a paste made from taro that lasts up to four days at room temperature and more if refrigerated.

Taro is a rich source of carbohydrates and fiber. Its carbohydrates are easier to digest than potato, yet consumption of taro is believed to be better for people than potato because of its high fiber content. It also contains some vitamins and minerals. It has been shown that a taro and sweet potato diet leads to better dental health than bread and rice.

Not only the corm of taro is eaten but also young leaves can be used in the elaboration of dishes together with coconut milk, vegetables, meat or fish.

Our Collection

A collection of taro varieties from the islands of Micronesia has been put together and maintained for our studies for a number of years. It is by no means a complete collection of taro varieties from our region, but we feel it is a valuable one for its diversity and because it contains taros with known resistance to important pests. Earlier in the 20th

century, taro leaf blight found its way out to some of our Pacific islands, which had been free of it for thousands of years; in a few years it wiped out many susceptible taro varieties, reducing the total number of varieties to just a fraction of their original numbers.

Taro has several pests and diseases that can damage the plant and reduce production. Leaf blight is the most important one of these. In 1992-93 it almost completely wiped out taro production in Samoa. The introduction of resistant taro varieties from Palau and temporary substitution of taro with *Xanthosoma* and *Alocasia* helped save taro cultivation in Samoa. Today Samoa is once again exporting taro.

Some taro varieties also have resistance to insect pests, like aphids. Both Taro Leaf Blight (TLB) and aphid resistance studies have been carried out at the University of Guam, and we provide this information where possible in the descriptions of the different taro varieties in our collection, presented in this publication. We also observed taro plants for symptoms of Dasheen Mosaic Virus (DMV) and Taro Bacilliform Virus (TaBV). Another factor that varies among taro varieties is their degree of itchiness, those varieties with more itchiness requiring longer cooking periods. This information is also provided. We also identify the origin of our collected

materials in order to give credit to those who donated them. It is also hoped that the descriptive information serves to identify the different taro varieties, which may be found in diverse locations under different names.

The authors extend their thanks to the many people on Guam, Yap, Pohnpei and Hawaii who helped in the gathering and testing of this taro collection. Thanks to Tamdad Sulog, James Gilmar, Maria Wurpig and Patrick Sogaw from Yap; Adelino and Catalino Lorens, Jackson Phillip, Marcelino and Bill Raynor from Pohnpei. Thanks to John Cho and Ramon De la Peña from Hawaii, and Ken Paulino, Paul Naputi, Frank Cruz, Vince Santos, Joe Cruz, Gabby Guerrero, Bernard Watson and Nenita Dumaliang from Guam. Also, thanks to the organizations that provided funding for this work, like USDA-TSTAR and ADAP.

Cultivation of Taro

This wonderful plant can be grown under two main cultivation systems, which are wetland or dryland. In areas with abundant water and heavy soils, taro can be grown under flooded conditions, that is, in a wetland. This method of growing taro leads to higher production compared to dryland cultivation. The flooded condition of the field does not harm the taro plant at all,

but it does not allow many weed plants to grow.

Where water is not so abundant, taro can be grown under dryland conditions, provided there is enough rain or water for irrigation when needed. Weeds must still be kept under control. Typical production of taro is 50-100 tons per hectare or more under wetland conditions, and 25-50 tons per hectare in dryland (a hectare is about two and a half acres).

Taro is planted by inserting the setts (top of the corm and base of the stems) into the ground at a depth of 10-15 cm (4-6"). Distance between plants can vary, but should be around 45 cm (one and a half ft), and distance between rows around 60 cm (two ft). Taro should be fertilized 4-5 times per season, and dryland taro takes 7-9 months of growth to mature, wetland taro taking 12-15 months.

As a rough guide for amount of fertilizer needed, one can apply around 370 kilos/hectare (325 lb/acre) of 16-16 at planting (10g or 2 teasp. per hole). Additionally, side-dress with ammonium sulfate at 370 kilos/hectare (325 lb/acre) divided into 2-3 applications, for instance at 10, 15 and 20 weeks. An equal amount of potassium chloride (muriate of potash) should be

mixed with this. Per plant, one could side-dress with a slightly rounded teaspoon (6 grams) of this mixture each of 3 times. No fertilizer should be applied after 5 months. As these are general figures, a soil analysis might save the grower money in avoiding unnecessary fertilizer applications. Excess fertilization can lead to more disease and pest problems since the vegetative stage of the plant could be prolonged. Furthermore, fertilizer run-off is not good for the reef.

Maturity of the taro corm is signaled by a reduction in plant size and some yellowing of the leaves, indicating the corm is ready for harvest; it should be visibly bulging out of the ground at the base of the plant.

Abbreviations:

DMV- Dasheen Mosaic Virus

TLB- Taro Leaf Blight

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AGAGA

Agaga is the most popular taro on Guam. It is a beautiful plant with large leaves, red stems and up to 10 long runners.

Corms are small, around 0.5kg (1 lb) and have a wonderful flavor. The consistency when cooked is firm and dry with a light aroma.

Agaga is susceptible to TLB and hornworms, but semi-resistant to aphids.





FIJI

Fiji is a medium-size, light-green plant surrounded by up to 20 suckers.

It produces small corms weighing up to 0.5 kg (1 lb). It is delicious with a nice aroma and a delicate taste of cooked crab. The consistency is sticky.

Fiji is resistant to aphids, moderate resistant to TLB and seldom shows symptoms of DMV, but is very susceptible to hornworm.





JAPON

Japon is a very tall plant with handsome green and purple stems. The mother plant is surrounded by up to 10 suckers.

Corms are small, weighing around 0.5kg (1 lb). It has a very good, slightly sweet taste with a firm consistency and a light aroma.

Japon is susceptible to TLB, hornworm and aphids.



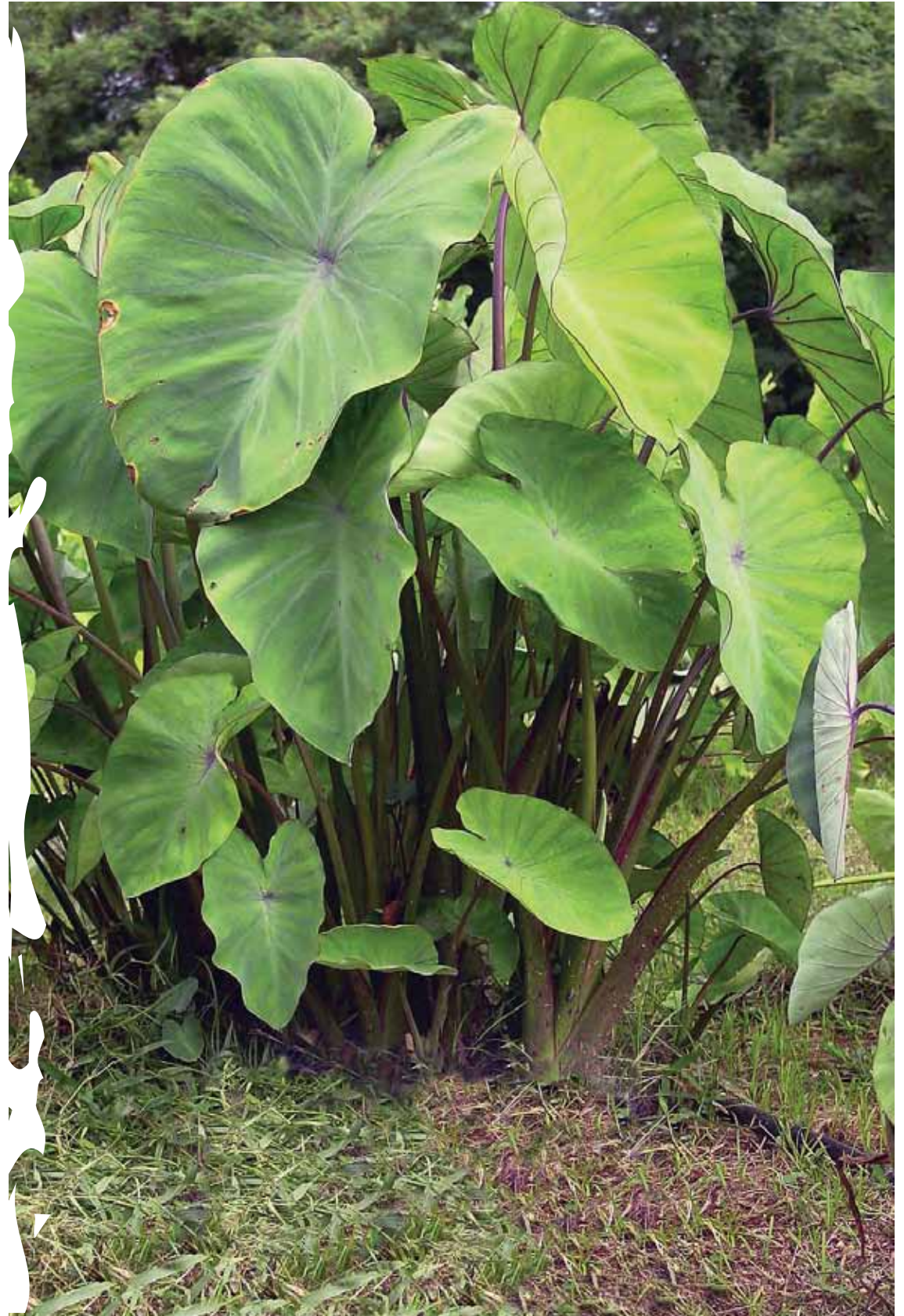


SAIPAN

Saipan it is a tall plant with many runners, some longer than 15 cm (6 in).

Corms weigh 1kg (2 lb) and are full of flavor with a dry, starchy consistency but no aroma.

Saipan is moderate resistant to TLB but susceptible to aphids and hornworms.





VISAYA

Visaya is a tall plant with large leaves on dark purple stems and having many very long runners, longer than 15cm (6 in).

The average weight of the corm is 0.5 kg (1 lb) and has purple fibers throughout the flesh; it has a very good taste. The consistency is sticky and dry. It is classified as one of the best quality taros. It is very similar to Toantol.

Visaya has moderate resistance to TLB and hornworm but is very susceptible to aphids.





BC-4

BC-4 is a medium-size plant surrounded by many light green suckers.

Corms are big and weigh 2 kg (4 lb) on average. This taro is delicious with a soft, sticky consistency and a light aroma.

BC-4 is resistant to aphids, hornworms and seldom shows symptoms of DMV.





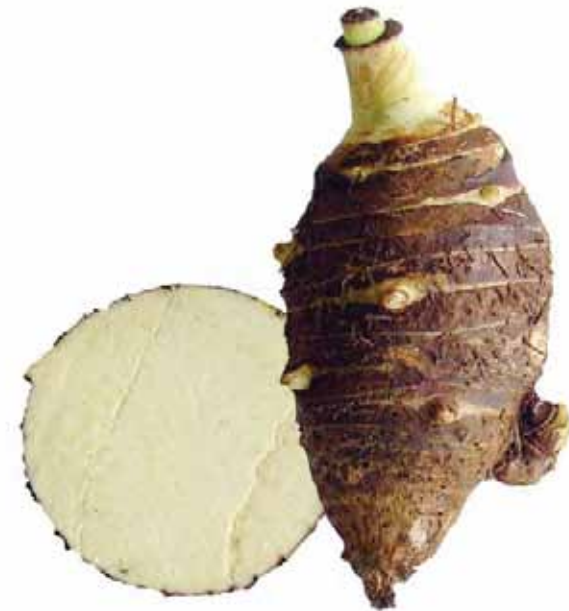
Hawaii

BC-20

BC-20 is a tall plant with dark green stems and large leaves. The junction of the petiole and leaf blade is purple.

The corms are small, often weighing under 0.5 kg (1 lb). It is flavorful with a sticky consistency.

BC-20 is resistant to aphids, hornworms and seldom shows symptoms of DMV.





BC-23

BC-23 is a medium-size plant with very purple stems surrounded by many suckers.

The corm is small weighing 0.5kg (1 lb) and it is very tasty. Consistency is firm with sweet aroma.

BC-23 is semi-resistant to aphids but susceptible to hornworm and frequently shows symptoms of DMV.





BC-26

BC-26 is a light green, tall plant with medium-size leaves.

The average weight of corms is 1kg (2 lb) and it is delicious with a crunchy, dry consistency and nice aroma.

BC-26 is susceptible to aphids, hornworm and frequently shows symptoms of DMV.



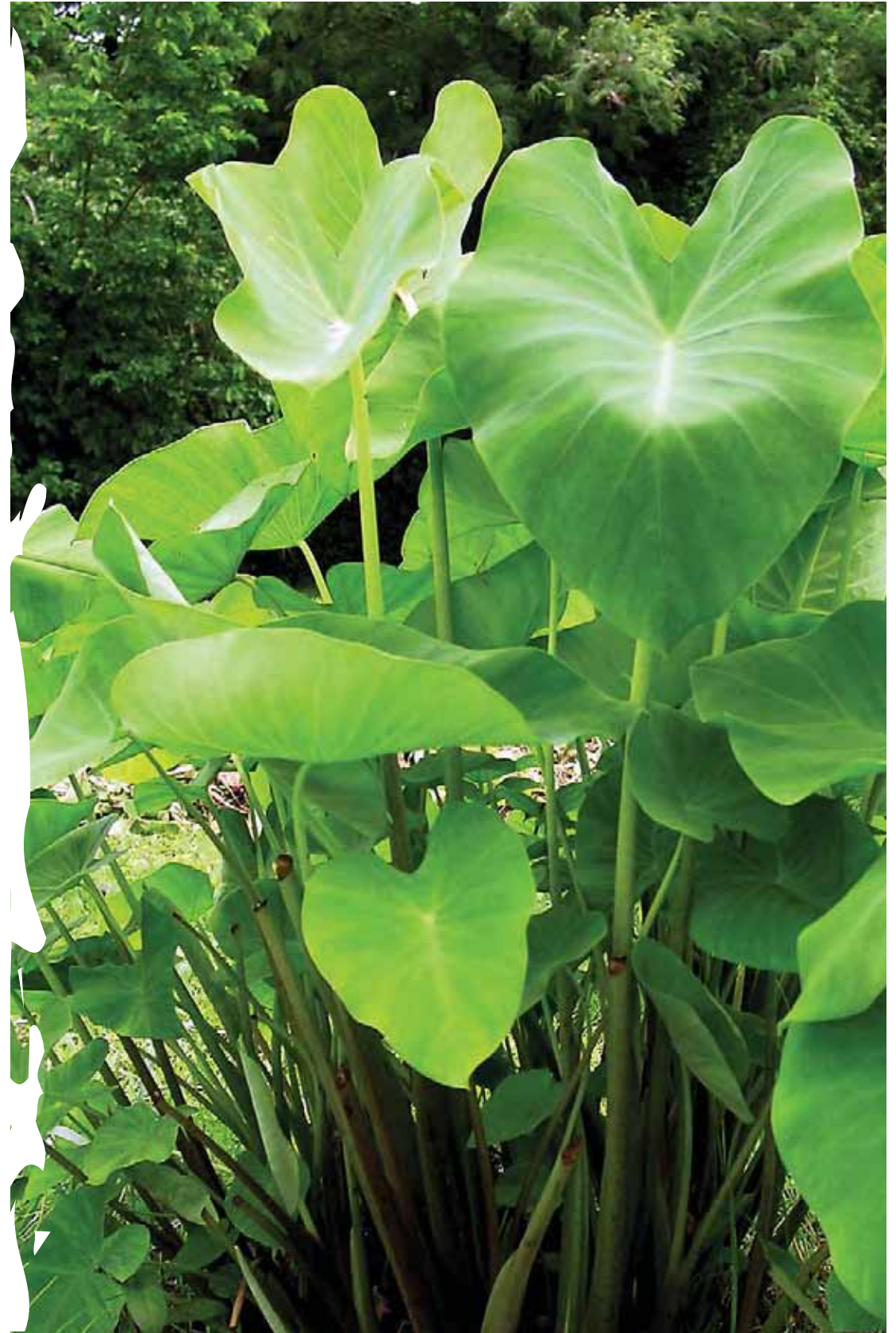
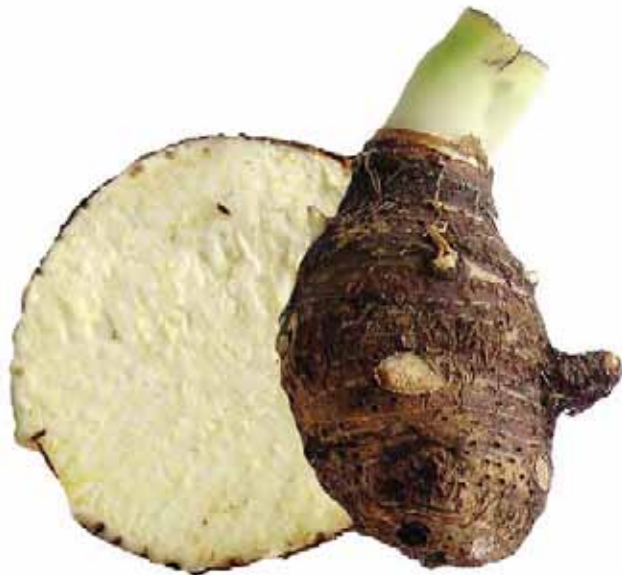


BC-28

BC-28 is a big plant with large, dark green leaves.

It produces 2 kg (4 lb) corms that are very tasty. The consistency is firm with a sweet aroma.

BC-28 is resistant to aphids, hornworm and seldom shows symptoms of DMV.





BC-29

BC-29 is a very big, green plant surrounded by up to 10 suckers.

Corms weigh around 1 kg (2 lb) and are very tasty. The consistency is moist and sticky with a light aroma.

BC-29 is resistant to aphids, hornworm and seldom shows symptoms of DMV.





BC-30

BC-30 is a very tall plant with dark green and purple stems, and has very large, dark green leaves.

Corms are big, 2kg (4 lb) on average. They taste great with a starchy, firm consistency and a nice aroma.

BC-30 is resistant to hornworms and aphids.





Hawaii

ILIUUAU

Iliuaua is a green, medium-size plant that has only a few shoots growing on very long runners plus a few suckers around the mother plant.

The average weight of the corm is 2kg (4 lb). It has a great taste with a sticky, dry consistency.

Iliuaua is resistant to aphids and hornworm.



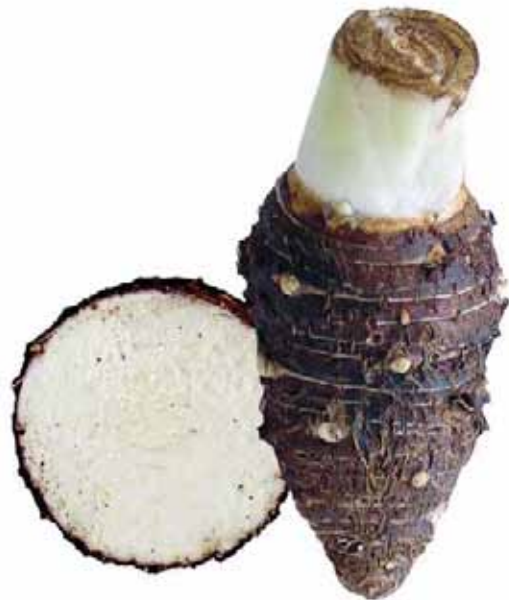


OKINAWA

Okinawa is a very green, medium-size plant surrounded by many suckers.

The corms are very small often weighing under 0.5kg (1 lb). It is a delicious taro with a fibrous consistency and no aroma.

Okinawa is resistant to aphids and seldom shows symptoms of DMV but is not resistant to hornworm.





P 10

P-10 (Ngeruuch) is a medium-size plant having few, very long runners, some exceeding 15cm (6 in) in length.

The average corm weight is 1 kg (2 lb) and they have a great taste and firm consistency.

P-10 is resistant to TLB, but not to hornworms and aphids; it is seldom seen with symptoms of DMV.





P 20

P-20 (Dirratengadik) is a very colorful, tall plant having 5 to 10 runners less than 15cm (6 in).

The corms are very small, under 0.5 kg (1 lb), with a dry, sticky consistency and light fragrance when cooked. They are considered to be of the very best quality.

P-20 is resistant to TLB, aphids, hornworms and seldom shows symptoms of DMV.





AHLAHL

pohntipw

Pohnpei

A. P. (Ahlahl Pohntipw) is a very tall plant with large leaves. The stems are very distinctive due to their colorful stripes. Suckers are plentiful (11-20) growing around the mother plant.

Corms are big, often weighing more than 2kg (4 lb), very tasty with a mottled color but no aroma. The consistency is dry and starchy.

A. P. shows moderate resistance to TLB and hornworm but is susceptible to aphids.





Pohnpei

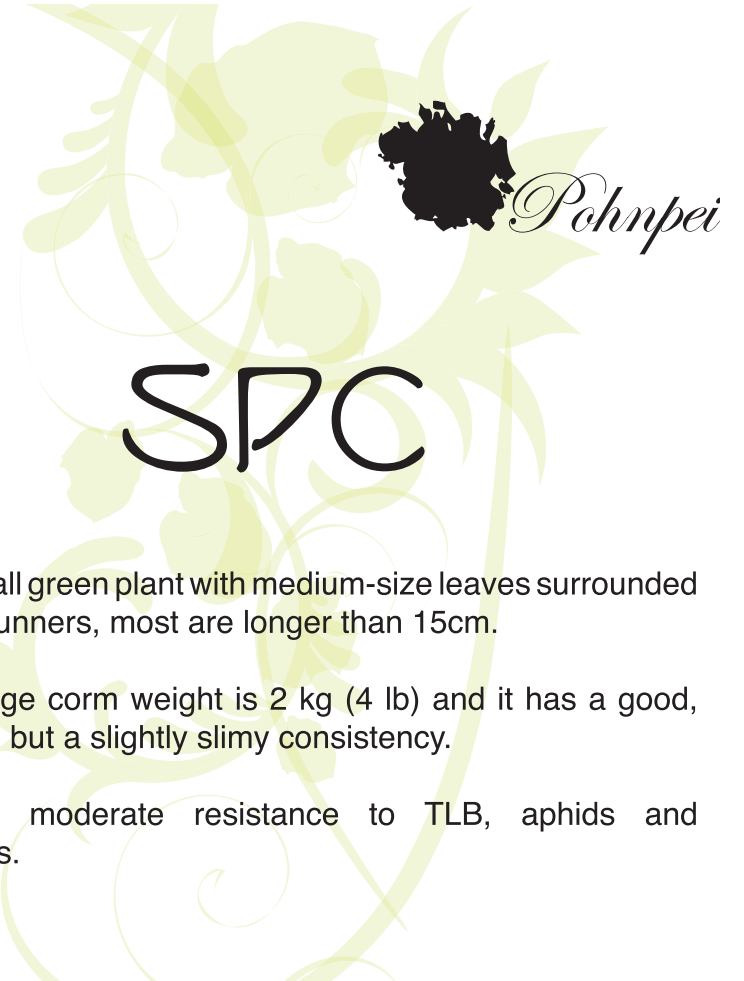
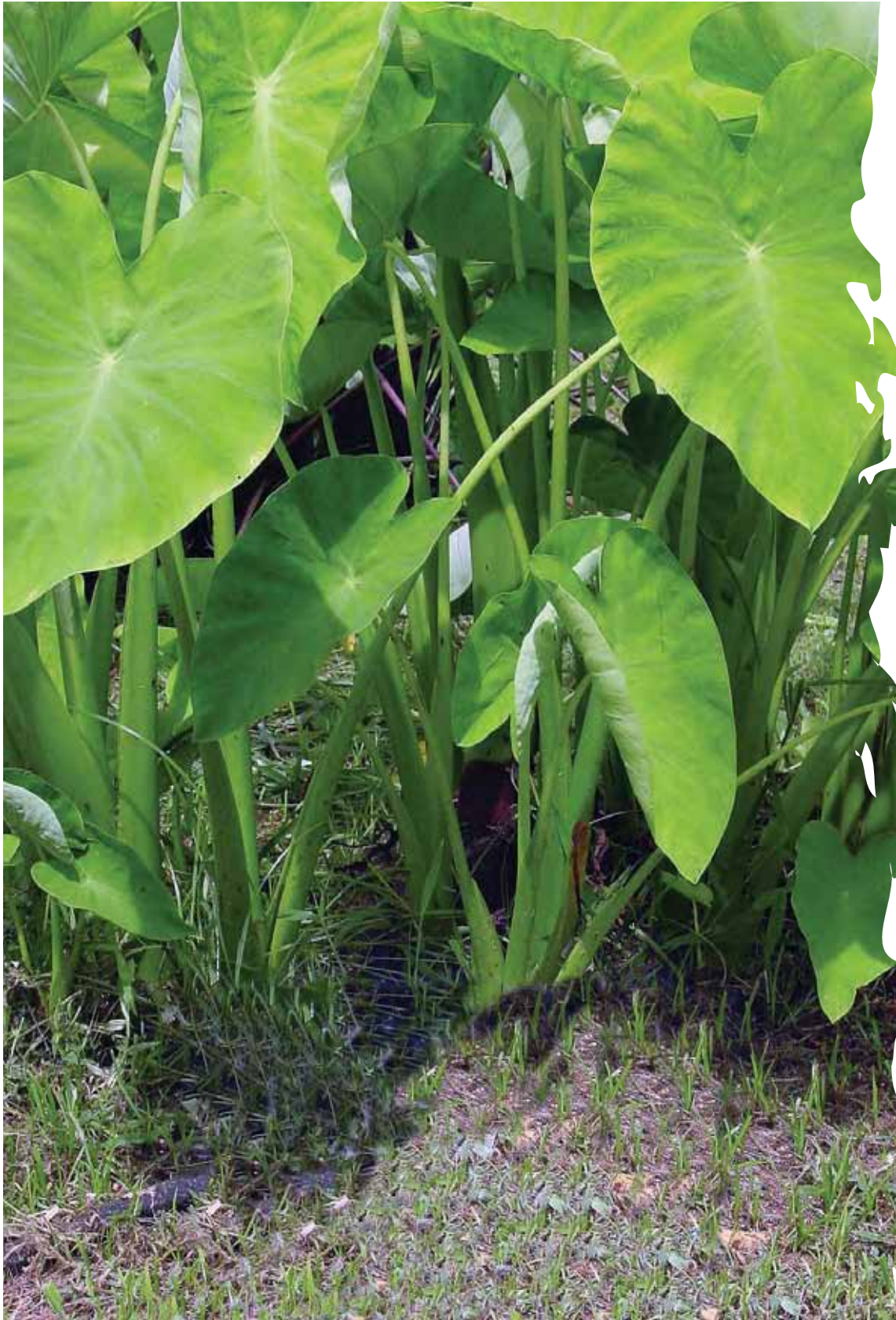
KOSRAE

Kosrae is a medium-size, beautiful taro plant surrounded by up to 10 suckers.

It produces 1 kg (2 lb) corms that are full of flavor with a mealy consistency and an aroma like sweet potatoes.

Kosrae has moderate resistance to TLB, and is resistant to hornworm and aphids.





SPC is a tall green plant with medium-size leaves surrounded by many runners, most are longer than 15cm.

The average corm weight is 2 kg (4 lb) and it has a good, nutty taste but a slightly slimy consistency.

SPC has moderate resistance to TLB, aphids and hornworms.





TOANTOAL

Toantoal is a very tall plant with large leaves and dark purple stems having very long runners, longer than 15cm (6 in).

The average weight of the corm is 1 kg (2 lb), it has purple fibers in the flesh and has a very good taste. The consistency is sticky with a kind of a sweet potato aroma. It is very similar to Visaya.

Toantoal is moderately resistant to TLB, but very susceptible to aphids and hornworm.





NIUE

Niue is a tall plant with deep green stems and medium-size leaves.

The corms are very small, often weighing under 0.5kg (1 lb). They are delicious with a sticky consistency, light aroma and an unusual, grayish color. It was very popular in Samoa where it produced large corms, but in 1992 they had a blight epidemic that nearly wiped it out.

Niue is very susceptible to TLB, but semi-resistant to aphids and resistant to hornworm.



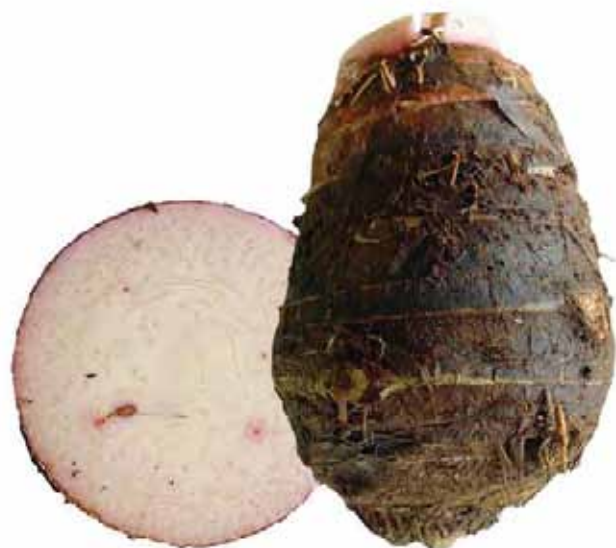
Yap

DAR-2

Dar-2 is a medium-size plant with up to 10 side shoots sprouting along the length of the runners.

It produces a rather large corm around 2kg(4lb). It has a dry consistency and both the taste and aroma are very pleasant.

Dar-2 shows resistance to hornworm and mild resistance to aphids; it is seldom seen with symptoms of DMV.





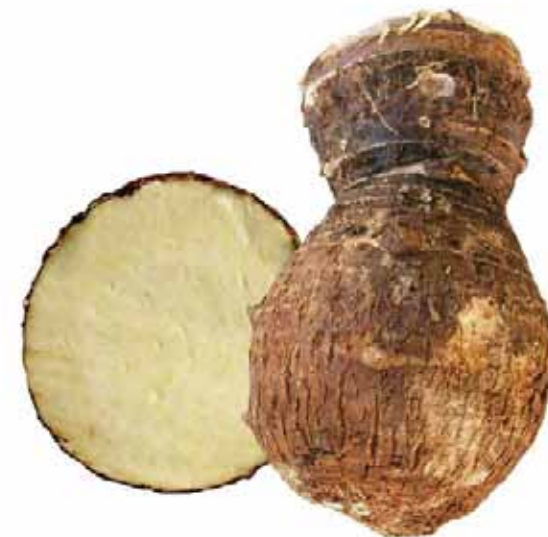
DAR 7

Yap

Dar-7 is a medium-size plant with very big leaves surrounded by 10 or more suckers. Dar varieties come from Darbagec.

The corm is small, around 0.5kg (1 lb), and has a very nice taste. The consistency is soft and sticky.

Dar-7 is resistant to aphids and hornworm.



Yap

DAR 10

Dar-10 is a very tall variety with large leaves and a great number of suckers around the mother plant.

Corms weigh an average of 2 kg (4 lb) and are tasty with a sticky, dry consistency.

Dar-10 is moderately susceptible to hornworm and aphids, and frequently shows symptoms of DMV.





Yap

HANA

Hana is a beautiful, tall plant with a characteristic, spread-out red petiole junction on the upper surface of the leaf and more than 11 suckers surrounding the mother plant.

The corm weighs around 1kg (2 lb). It has a beautiful aroma with a firm consistency and is one of the most flavorful taros in our collection. It needs a longer cooking time to avoid the itchy after-taste.

Hana is resistant to hornworm and semi-resistant to aphids; it is seldom seen with symptoms of DMV.



Yap

LAEV

Laev is a medium-size plant with about 10 suckers growing around the mother plant.

The average weight of the corm is 1kg (2 lb). Laev is considered to be one of the best taros in our collection regarding quality and flavor with a dry, crumbly consistency and woody aroma.

Laev, unfortunately, is susceptible to TLB and aphids but resistant to hornworm.





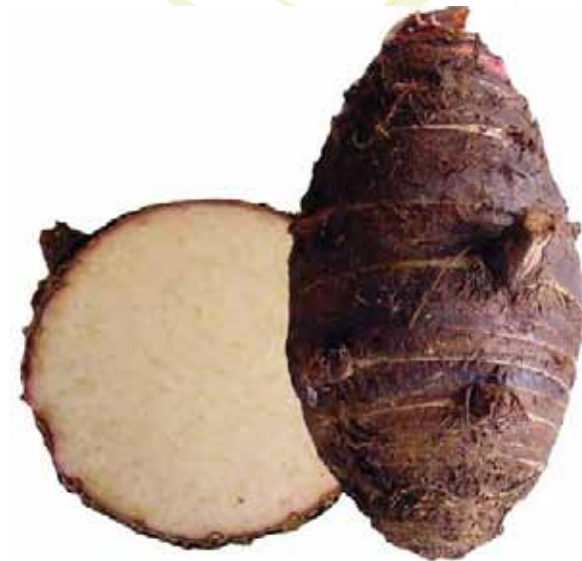
Yap

LIKAY

Likay is a medium-size plant with lots of very long runners.

Corms average 2 kg (4 lb) and have a good taste with dry, starchy consistency and a little sweet.

Likay is moderately resistant to TLB and aphids.



Yap

MANG

Mang is a very beautiful, tall plant with attractive purple stems surrounded by more than 20 suckers.

The average corm weight is 1 kg (2 lb). It has a delicate aroma with a banana-like taste and a sticky consistency.

Mang has moderate resistance to TLB, hornworm, aphids and seldom shows symptoms of DMV.





MANG red

Yap

Mang Red is a beautiful, tall plant with medium-size leaves and a characteristic red butterfly shape in the petiole junction. The mother plant is surrounded by up to 20 suckers.

The corm weighs around 2kg (4 lb) and is very tasty. Some find the taste similar to sweet potatoes. The consistency is moist and sticky with a fruity and very pleasant aroma.

Mang Red is resistant to hornworm and semi-resistant to TLB and to aphids.



Yap

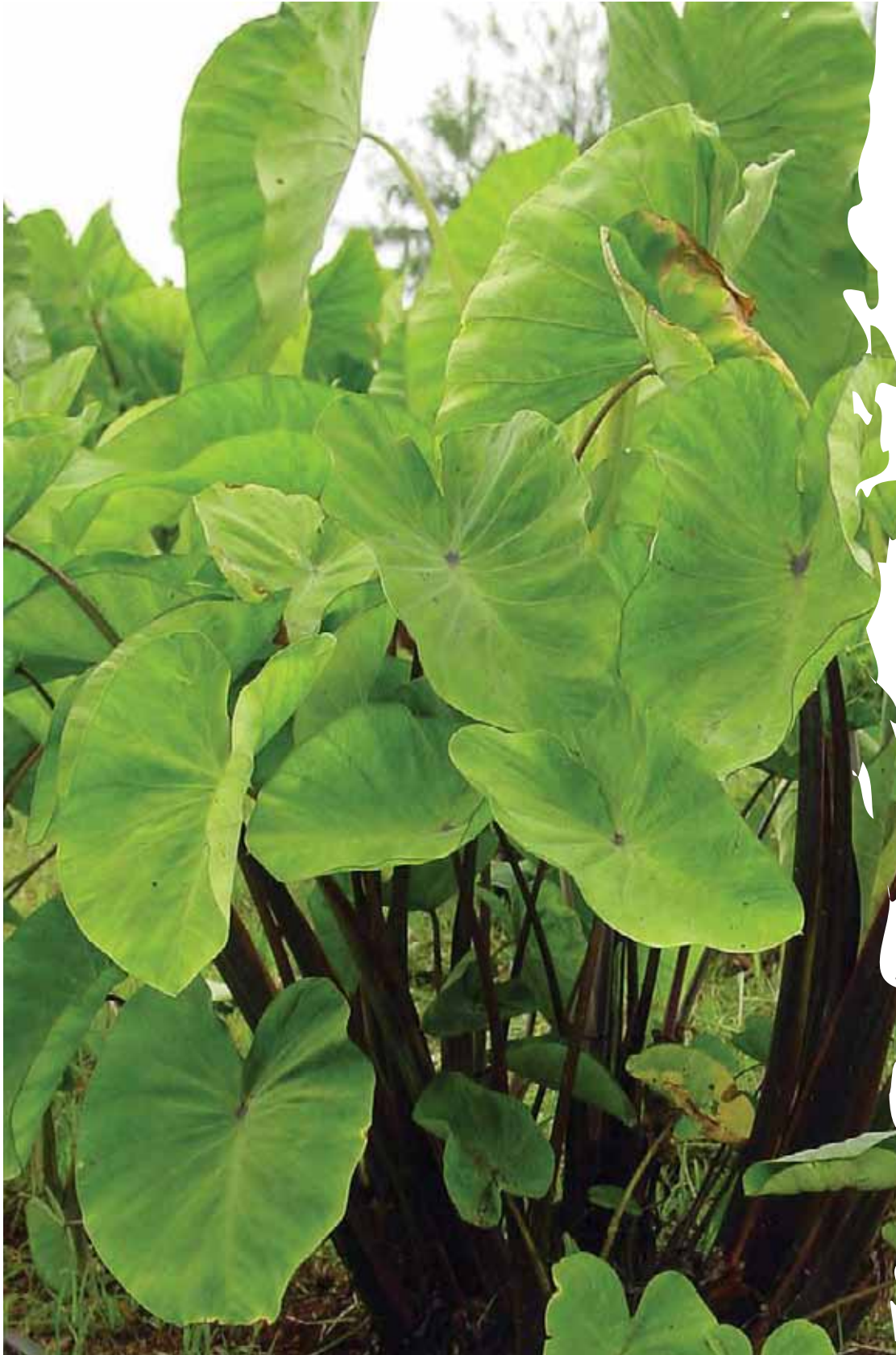
MAT

Mat is a tall, striking plant with purple stems surrounded by many suckers.

The average corm weight is around 2 kg (4 lb). It has a slightly sweet taste and a soft consistency.

Mat is resistant to hornworms and moderately resistant to aphids but very susceptible to TLB.





MOY

Yap

Moy (Moyolyol) is a medium-size plant with dark purple stems surrounded by more than 10 suckers.

The average corm weight is 1kg (2 lb) and it has a grainy, dry consistency. It is considered to be one of the most flavorful taros in our collection.

Moy is resistant to TLB, has moderate resistance to aphids and seldom shows symptoms of DMV, but is quite susceptible to hornworm.



Yap

OL

Ol is a very tall, green plant with medium-size leaves surrounded by a few runners that are longer than 15cm (6 in).

It produces 1kg (2 lb) corms that are very tasty with a firm, dry consistency and nice aroma. It can cause an itchy feeling so it is advisable to cook it a bit longer than other taros.

Ol is resistant to TLB, hornworm and aphids, and seldom shows symptoms of DMV.





Yap

SUSHU

Sushu is a medium-size plant with only a few suckers growing around the mother plant.

Corms are small, usually under 0.5 kg (1 lb). The cooked corm is very tasty with a sticky, fibrous consistency and light aroma.

Sushu is resistant to TLB and hornworm, with moderate resistance to aphids, and seldom shows symptoms of DMV.



Yap

TAMDAD yellow

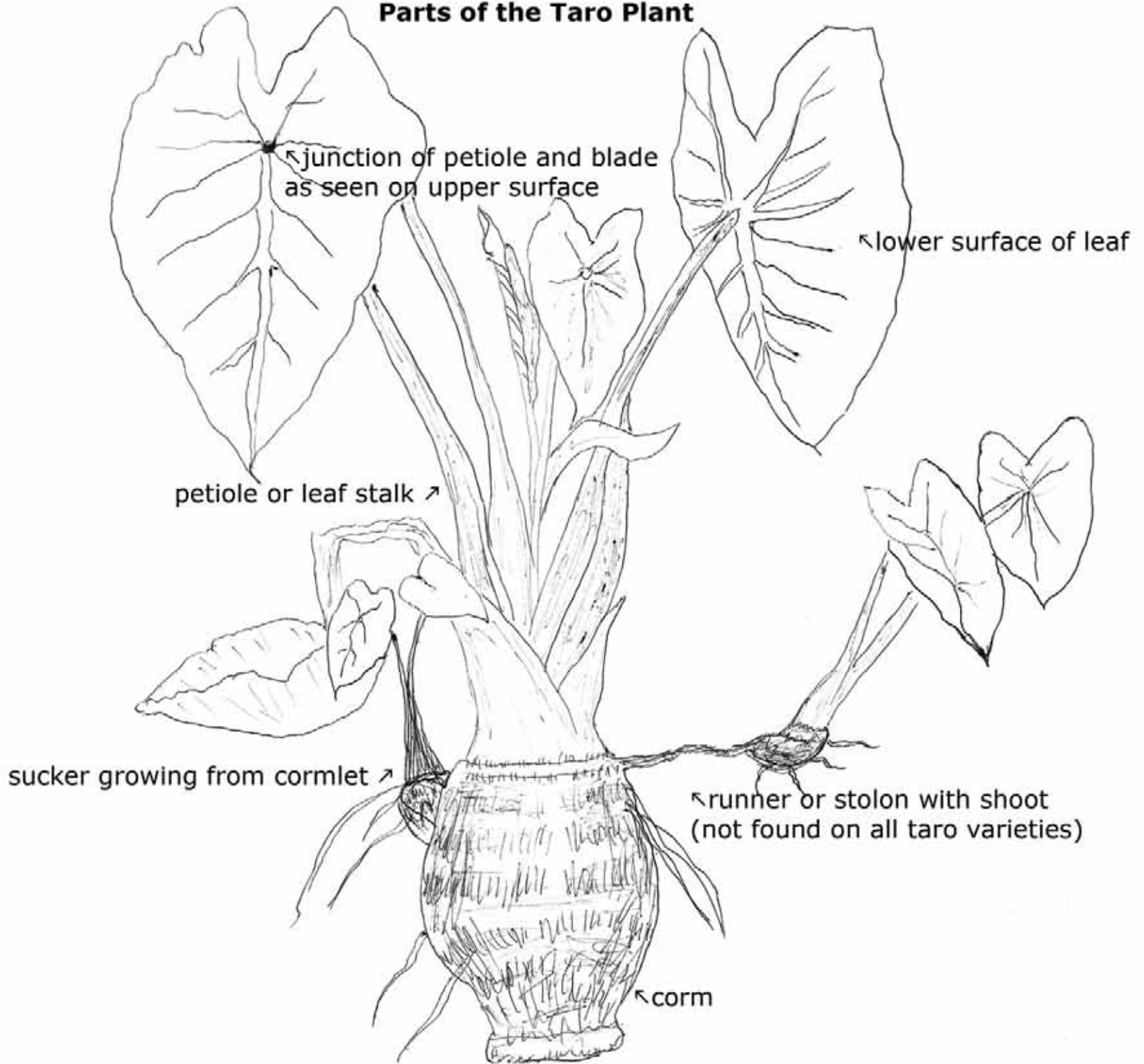
Tamdad Yellow is a tall plant surrounded by many suckers; it has pale green leaves with a purple-blue spot.

It produces very tasty 0.5 kg (1 lb) corms. Cooked corms have a dry consistency with no aroma. The flesh of the corms is yellow.

Tamdad Yellow is semi-resistant to aphids and hornworm.



Parts of the Taro Plant



CREDITS

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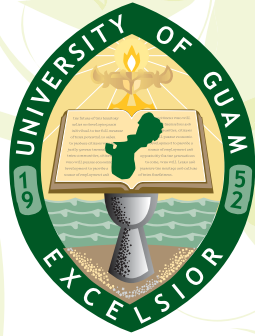
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