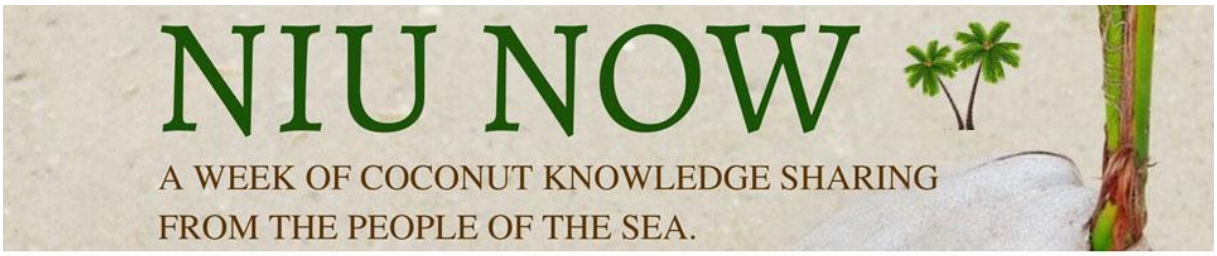

AHA Niu: International Coconut Summit
Honoring Our Coconut Heritage, Hawaii Convention Center,
Honolulu, HI, United States. (2024, June 12–14)

How farmers and gardeners can better conserve, breed, and use their traditional coconut varieties

[Conference presentation].

By Bourdeix, R., Pilotti, C., Johnson, V. B., Ellacott, W., & Chant, H.

This online training module provides a comprehensive introduction to how **farmers and gardeners** can more effectively **conserve, improve, and utilize traditional coconut varieties**. It emphasizes the **incredible phenotypic diversity** of the coconut palm and highlights the critical yet often underestimated role of farmers in maintaining and shaping this diversity over generations.

The first section introduces the **botanical classification of coconuts**, distinguishing between **Tall-types** and **Dwarf-types**, with subgroups such as Compact Dwarfs and Fragile Dwarfs. These groups differ not only in height and fruiting behavior but also in pollination strategies. The course explains that the coconut palm is **monoecious**, bearing both male and female flowers on the same inflorescence. The spikelets contain 100–300 male flowers and a smaller number of female flowers, which are located near the base.

A key concept is the **timing of floral phases**: male flowers usually open first and release pollen for several days, while female flowers are receptive for 1 to 4 days. Pollination can occur through wind or insects, but insects—especially bees—are predominant. Despite the abundance of pollen, fruit set is low (typically around 30%), partly due to the narrow window of compatibility between male and female phases and external stresses such as drought or nutrient deficiencies.

The course then emphasizes the **traditional breeding work** done by farmers, who have patiently selected unique coconut types over decades, such as those with sweet husks or

superior flavor. These efforts are often unrecognized in formal breeding programs, yet they represent a reservoir of genetic resources. For example, only one exceptional coconut may be found among dozens or hundreds of progenies, as demonstrated with the Polynesian “Kaipoa” or specific Tall-type selections.

A particularly rich section of the module explores **four traditional Polynesian classification systems**, in which coconuts are identified as “male” or “female” based on fruit shape, taste, or productivity. While these systems differ from scientific understanding—where each coconut tree is both male and female—they offer **practical tools** for farmers to **select good seednuts**. The course advocates a respectful **fusion between traditional knowledge and scientific methods**, promoting mutual benefit and farmer empowerment.

To improve **seednut production and varietal conservation**, the course introduces **simplified controlled pollination techniques** adapted for farmers, helping them go beyond reliance on open pollination. This is crucial in preserving specific desirable traits across generations. The module also stresses the importance of **visual varietal catalogues**, which combine standardized photography and field descriptions to document and share coconut diversity. These tools have already been developed for French Polynesia and New Caledonia and are proposed for other countries like Fiji, Samoa, Tonga, and Tuvalu.

In conclusion, the course encourages greater collaboration between farmers and researchers. Farmers are guardians of a living heritage, and by improving their access to scientific tools and knowledge, they can more effectively **conserve, breed, and enhance** coconut biodiversity in their own fields—ensuring food security, resilience, and cultural continuity for generations to come.

APA reference: Bourdeix, R., Pilotti, C., Johnson, V. B., Ellacott, W., & Chant, H. (2024, June 12–14). How farmers and gardeners can better conserve, breed, and use their traditional coconut varieties [Conference presentation]. AHA Niu: International Coconut Summit – Honoring Our Coconut Heritage, Hawaii Convention Center, Honolulu, HI, United States. https://www.youtube.com/watch?v=qO2TvCV7hm4&t=1s