

Corn Production in the Tropics

The Hawaii Experience

by James L. Brewbaker

Contents

Corn and Its Environment—Corn production around the world; Hawaii's corn production; corn's environmental requirements; corn's many uses and markets

The Corn Plant—Origin and evolution of corn; wild relatives; corn and early American civilization; the corn seed; growth of the corn seedling; the maturing corn plant; the developing ear and kernel; the mutants of corn

Hybrids and Varieties—Good seed doesn't cost, it pays; varieties and hybrids; recommended hybrids for Hawaii; major types of field and sweet corn; seed production, storage, viability, maturity; adaptability and yield tests

Land Preparation and Planting—Seedbed preparation; tilling; plowing; secondary tillage; no-tillage; plant density; planters and planting depth

Fertilizers—N, P, and K; rates of N, P, and K uptake; secondary nutrients, micronutrients and lime; lime and soil pH; fertilizer application; organic fertilizers; soil and tissue testing

Water—Pan evaporation and evapotranspiration; water-use efficiency; symptoms of moisture stress; breeding drought tolerance; irrigation water needs; forms of irrigation; salinity and irrigation

Weed Control—Major weeds in Hawaii's corn fields; weed competition and yield loss; tillage practices and crop rotation; herbicides; herbicide-resistant corn; four major classes of preemergence herbicides; environmental concerns

Diseases and Pests—Pesticide-free corn production; diseases; maize mosaic virus; other viruses; common rust; southern rust; northern corn leaf blight; southern corn leaf blight; yellow leaf blight; bacterial diseases; brown spot; rots of seedling, ear, and kernel; smut; insects and mites; corn earworm, borers, planthoppers, thrips,



mites, aphids, beetles; miscellaneous pests; pests and diseases Hawaii doesn't want; pesticides and BT transgenics

Harvesting and the Harvested Crop—Grain; chemical constitution, specialty corns, time of harvest, grain drying; green-chop and silage; green-chop, silage hybrids, consideration at planting, consideration at harvest, a microwave test for silage moisture, silos and silage-making; vegetable corns; baby corn, supersweet corn, time of harvest

The Corn Seed Industry—Accelerating genetic progress; Hawaii's seed industry; history of Hawaii's seed industry; a unique production regime; Hawaii Crop Improvement Association

References and supplementary reading
Some favorite recipes for Hawaii's supersweet corn

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