



Challenges Facing Mango Producers in Hawaii

Mike Nagao
University of Hawaii, CTAHR
Komohana Research & Extension Center
875 Komohana St.
Hilo, HI 96720

College of Tropical Agriculture and Human Resources
University of Hawaii at Manoa


Insect and Disease Management



Consistent Flowering




Canopy Management




Mango anthracnose
(*Colletotrichum gloeosporioides*)

<http://www.ctahr.hawaii.edu/oc/freepubs/pdf/PD-48.pdf>



Publications and Photos by
Scot C. Nelson, CTAHR Plant Pathologist


Mango Powdery Mildew



<http://www.ctahr.hawaii.edu/oc/freepubs/pdf/PD-46.pdf>

Insect & Disease Management





HAW-FLYPM
Hawaii Area-wide Fruit Fly Pest Management Program
A Collaborative Project Between the UH CES, USDA ARS, and HDOA

<http://www.extento.hawaii.edu/fruitley>

Physiology of Flowering

Mango Flowering Model

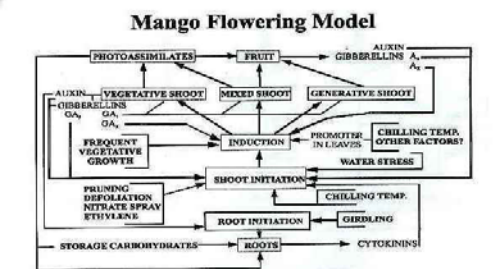




Figure 1. Conceptual flowering model of mango. The model summarizes the proposed roles for various phytohormones in initiation of shoot growth and in defining the vegetative or reproductive outcome of that growth (induction). Single lines in the scheme are promotive and double lines are inhibitory.

Davenport, T.L. (2007)
Reproductive physiology of mango. Braz. J. Plant Physiol. 19(4) 363-376.


Flowering



Vegetative Flushing




↑ **2. Induction**



Branch Cool temp
Age <59 F
(florigenic promoter)

Warm temp
(vegetative promoter)

↑ **1. Shoot Initiation**




pruning, nitrate sprays, cool temp



Flowering

Rockhampton - Australia

	J	F	M	A	M	J	J	A	S	O	N	D
Max (F)	89.4	88.3	86.9	83.8	78.8	74.1	73.6	76.5	81.1	85.3	88.2	89.8
Min (F)	71.8	71.8	68.9	64.0	57.6	51.6	49.1	51.1	56.5	62.6	67.1	70.2



Sept

Response of Haden Trees to Potassium Nitrate Spray (4%)

Application Date Sept 96

	Terminals Flowering (%)	Terminals Vegetative %
KNO3	100	0
Control	0	0

Application Date Dec 96

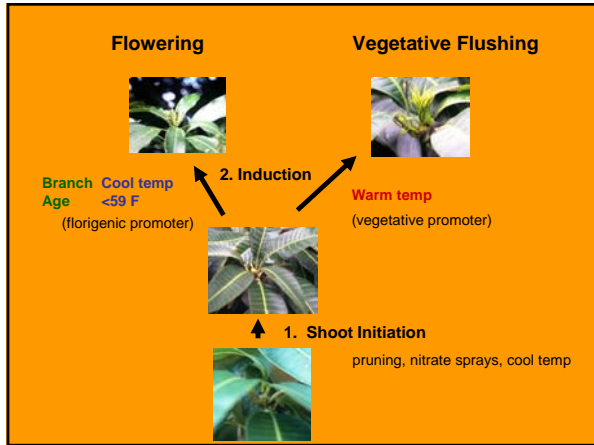
	Terminals Flowering (%)	Terminals Vegetative %
KNO3	48.3	3.30
Control	0	0

Application Date Mar 97

	Terminals Flowering (%)	Terminals Vegetative %
KNO3	85	0
Control	0	0


Application Date June 97

	Terminals Flowering (%)	Terminals Vegetative %
KNO3	76.6	0
Control	0	0



Cultivars Responding to Potassium Nitrate

- Haden
- Keitt
- Momi K
- Excel
- Ruby
- Pope
- Joe Welch
- Manzanillo



Haden

Canopy Management

Rockhampton, Australia




South Florida



Taiwan

Irwin



Pruning Mango (Taiwan)



“Condo” Mangos

Cogshall
Fairchild
Neelum
Lancetilla
Mallika
Rosigold
Angie



What can we do?

Evaluate “new” cultivars for consistency of flowering and maintaining a “dwarf” canopy architecture under Hawaii growing conditions.

Evaluate pruning strategies on current and “new” cultivars in Hawaii for return bloom and canopy management.

Identify cultivars that are capable of off-season flowering.

Identify cultivars with resistance to diseases such as powdery mildew and anthracnose.

End