







Pitaya Pest And Diseases Management

Ahmad Kamil B. Mohd Yunus
Unit Perlindungan Tanaman dan Kuarantin Tumbuhan ,
Jabatan Pertanian
Johor Bahru




Topics covered

- Introduction
- Current pest and disease scenario
- Brief description of major pest and disease of pitaya
- Managing pest and disease – current trend practices by growers




Introduction

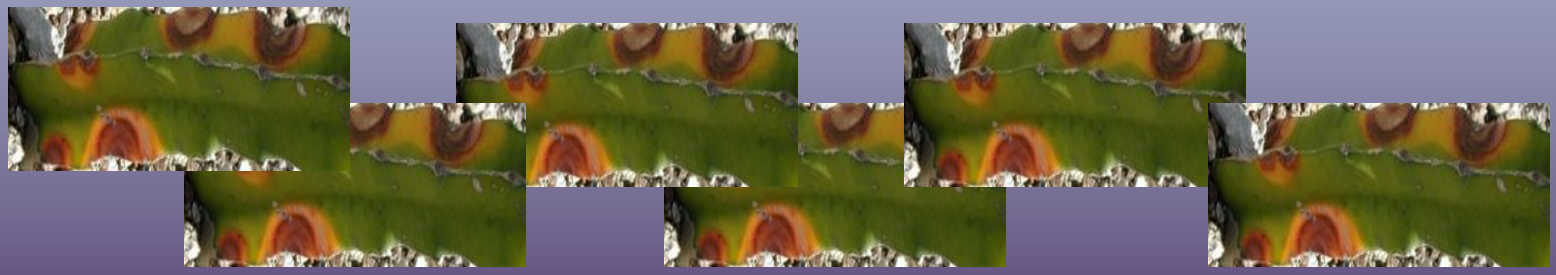
- 3 major pitaya grown in Malaysia *Hylocerus undatus, H. polyrhizus , Selenicereus megalanthus.*
- Imported into Malaysia..?
- Native to Mexico, South and Central America. Now cultivated in Tropical and sub – Tropical Asia.
- Weather and soil conducive for pitaya cultivation. However heavy rainfall or overwatering and waterlogged soil detrimental to the crops.

Pitaya requirements

- A dry tropical climate with an average temperature of 20-30ºC is the best for Pitaya. Rainfall requirements are 500-1500mm with alternating wet and dry seasons. They love lots of sun light, but can be damaged by high levels of light intensity for a period of time. Therefore it require some shading. Basically, the plants of Pitaya are able to tolerate drought, heat, poor soil and cold. Maximum temperatures of Pitaya are 38-40ºC. There is a positive response in growth to organic matter. Soil within 10 to 30 % of sand is the preferred for Pitaya.

Pest and Diseases of pitaya

- Pitaya (Cactaceae) in general are tolerant to disease of major concerned.
- However there are pest which are associated with the crop because of unfavorable climate and management of the crop.
- Among pest associated are anthracnose, brown spots, stem and fruit rots. Insects like beetles, ants , scales, snails and birds. No records of fruit flies have been observed but many growers bagged fruits as a measure of control.



Stem rot

- It is a major problems in pitaya cultivation.
- Elsewhere reported that the disease is caused by *Xanthomonas campestris,* however report in Taiwan isolated 2 organisms and subsequently successfully proved to cause the disease - *Fusarium oxysporium* and *Pantoea sp.* In Malaysia we have isolated *Erwinia caratovora* to cause bacterial soft stem rot.
- Disease prevalence in Johor.

Variation in Stem rot incidence

- Infection starts from injured areas especially the stem tissues scarred by insects or infection by anthracnose
- Yellowing of tissues followed by softening and smelly rotting of tissues. Advanced attack showed total rotting of fleshy succulent parts of stem leaving the main veins intact.
- Control measure includes pruning of infected parts, Copper compound sprays and nutrition.

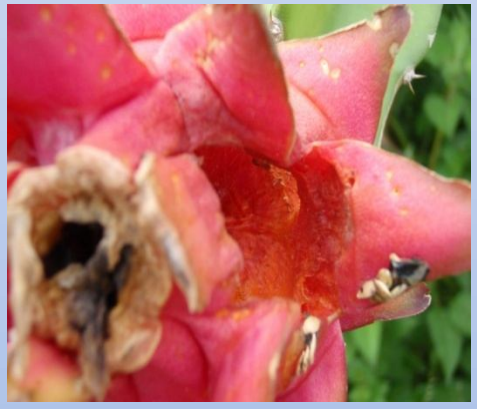
Anthracnose

- One of the common disease of pitaya
- Causal agent *Colletotrichum gloesperoides*
- Red brown concentric lesions with ascervuli developed near ribs of vine, in particular where the spines emerged from the rib edge. Disease also attack fruits.
- Disease becomes prominent during wet seasons
- Fungicidal sprays like mancozeb, maneb would be able to control

Other pest

- Brown stem spot disease

- Caused by *Botryoshaeria dothidea*



•Beetles, ants and birds

•Beetles occasionally attacks the young succulent stem and may caused necrosis. Ants feed on sap from fruits and may caused blemishes. Unwrapped and overripe fruits may be eaten by birds if left unharvested.

Fruit flies?

- Observation in the field no visual sighting of flies at any stage of fruit development even when ripen.
- In Latin America esp. Colombia and Mexico there are records of *Anastrepha sp.* fruit fly on pitaya and regarded as quarantine pest for US and Canada. Thus strict quarantine requirement will be imposed on imported consignments.

B.carambolae

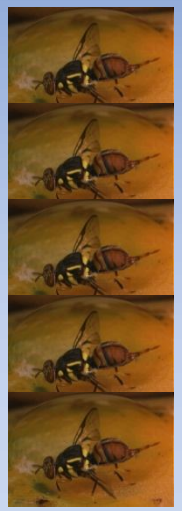
Managing pest - Current views and trends



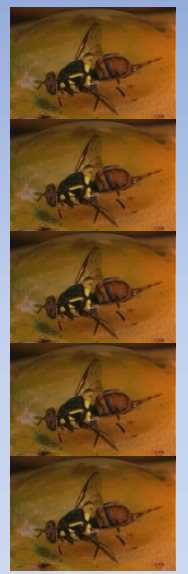
- Organically grown pitaya
- Agronomic and crop hygiene
- Chemical control – usage of Cu sulphate or any cu compounds, mancozebs
- Fruit bagging
- Soil amendments – organic fertilizer, soil microbes, effective microbes,antagonist, mychorrhiza, calcium infusion.
- Soil improvement and crop health – chitosan Poly Beta D glucosamine, crustacean,electrolytes etc.,enzymes.
- Quarantine measures.



Conclusion



- Pitaya is one of the crop which is blessed with little pest problems as compared to other major economic crops . The maladies which affected the industry could be elevated by proper managing the crop. If infested , the attack is small and can be overcome by various means . However , increased in pesticides cost almost three times have farmers rethink on managing the pest in conventional manner.
- New ways and strategy in providing less cost and higher returns are sought so as to make the crop a viable investment.




Thank You