CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th January, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
January (1-15) 2022	28.5	14.6	71.3	44.9	3.26	2.43	1.15
	(28.3)	(14.5)	(82.0)	(44.7)	(3.9)	(3.3)	(0)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th January, 2022

During the first fortnight of the month i.e., from 1st to 15th January, 2022 the mean of the both maximum temperature and minimum temperatures increased by 0.8^0C and 2.7^0C respectively as compared to previous fortnight. The mean maximum temperature increased by 0.5^0C and minimum temperature decreased by 0.5^0C respectively as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in morning decreased by 2.1% and in afternoon increased by 0.5% as compared to the previous fortnight. There was 1.15mm rainfall during the fortnight.

Crop weather situation

This fortnight recorded very less amount of rainfall (1.15 mm). For banana split dose of fertilizers may be applied during this period @110g N, 35g P and 330 g K / plant / year. Similarly micro nutrient deficiencies may occur due to low temperatures of this season. For banana Zn SO4 @ 0.5% , Fe SO4 @ 0.2 % , Cu SO4 @ 0.2 % and H3BO3 @0.1 % may be applied. Similarly for transplanted rabi vegetables, vegetable special may be applied through foliar spray.

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Hoppers on mango

- Incidence of hoppers is observed on mango.
- Spray Azadirachtin 1000 ppm @ 3 ml/l, if the hopper population is low to moderate.
- If the number exceeds 4 per panicle spray Imidacloprid 200 SL @ 0.3 ml/l or lambda cyhalothrin 5 EC @ 0.5 ml/l at early panicle emergence. This will also take care of thrips. Addition of sticker is essential. Avoid spraying on full bloom to protect pollinators.
- For organic orchards, application of the entomopathogen *Metarhizium anisopliae* formulation @ 5ml/L is recommended.

Flower webbers/inflorescence caterpillars on mango

- Besides hoppers, inflorescence caterpillars which web the flowers and feed inside are potential pests on mango during January.
- Application of lambda Cyhalothrin 5EC @ 0.5ml/L or cypermethrin 25EC @1ml/L are useful to control the pest.

Banana skipper

- Skipper butterfly is becoming a serious pest on banana.
- The larva rolls the leaves and feed by remaining inside. Affected leaves to be mechanically removed and destroyed. In case of severe infestation, spraying of Quinolphos 25EC @ 2ml/L or Chlorpyrifos 20EC @ 2.5ml/L is advised.

Vegetable Crops

Onion thrips

- Both on bulb and seed crops, thrips are expected to increase with ensuing rise in temperatures.
- Spraying with Imidacloprid 17.8SL (0.3ml/L) or Fipronil 5SC (1.5 ml/L) would be effective.

Tomato fruit borer:

- With the prevailing weather, incidence of Tomato fruit borer may increase on tomato. Spray *Ha*NPV @ 250 LE/ha during evening hours or spray Indoxacarb 14.5 SC @ 0.75ml/l or Spinosad 45 SC @ 0.3ml/l, if the incidence is very high.
- Proper waiting periods are to be followed before harvest of tomatoes.

Tomato moth

- Install Tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre
- Spray Indoxacarb 14.5SC @ 0.75 ml/litre or spinosad 45SC @ 0.3ml/l

Midge on chillies:

- Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage.
- Spray Thiamethoxam 25WG @ 0.3 g/l or fipronil 5SC (1.5 ml/L) would be effective.for their management.

Thrips on Chilli

- Incidence of thrips is increasing on capsicum grown under shade net/polyhouses and chilli grown under open conditions. Spray Imidacloprid 200 SL @ 0.5 mL/l or Fipronil 5 SC @ 1.5 ml/l.

Aphids on Cucurbits

- Aphid infestation may increase on different cucurbits.
- Spray Imidacloprid 200 SL @ 0.5 ml/l for their management.

Disease Scenario

Disease forecast and management practices based on weather parameters during the first fortnight of January, 2022

Fruit crops

Banana

- Sigatoka leaf spot (*Mycospheralla* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) *Macrophoma* fruit spot diseases need proper attention. Sigatoka could be managed by spraying Propiconazole (0.1%)/ whereas Crown rot, Anthracnose and Macrophoma fruit spot disease (Specially on var. Grand Naine) could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%), besides post harvest dip in Chlorine water (300 ppm) for 10 minutes.
- Application of Hexaconazole + Zineb (0.2%) may be effective in case of **complex infection** of diseases as mentioned above

Grape

- Incidence of Anthracnose and Powdery mildew infection are supposed to increase may be noticed.
- For the management of anthracnose, application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) whereas, for powdery mildew application of

Azoxytrobin (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease.

- Rust might continue to be noticed in grape vine orchards (var Bangalore Blue) and could be managed by the treatment with Chlorothalonil (0.2%) / Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

Mango

- Powdery mildew requires attention, application of wettable Sulphur shall be taken only when the temperature is very high.
- Anthracnose spots might further increase on foliage. Application of Mancozeb + Dinocap (0.3%) or Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase.Application of Difenoconazole (0.05%) or Thiophanate methyl (0.1%) is recommended along with sticker @ 0.5 ml/ l.

- Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).

Papaya

- Infection of Black spot (*Asperisporium caricae*) may further increase and Powdery mildew (*Oidium caricae*) infection may also be noticed.
- Application of Chlorothalonil (0.2%) Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

Pomegranate

- Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides)* may increase further. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control

Vegetable Crops

- Powdery mildew incidence will be high in all vegetables (solaceous and cucurbitaceous). If temperature is not high wettable sulphur can be given. If temperature increases spraying of wettable sulphur should be avoided. Hexaconazole at 0.1% along with sticker 0.5ml/ l will be effective in controlling the powdery mildews in vegetables.

- Anthacnose in vegetables will increase especially in chillies. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) along with sticker 0.5ml/l will be effective.

Ornamental Crops

- Powdery mildews is observed in Rose and Gerbera. Spraying Azoxystrobin at 0.1% along with sticker 0.5ml/l will help in reducing powdery mildew and spread under protected cultivation. In not spread extensively Tebuconazole or Hexaconazole at 0.1% with sticker also will help.

Viral Diseases

- Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many virus diseases. Seed treatment with Imidacloprid or spray of Acephate (0.2%) will be effective in controlling vector population

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 31st January, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
January (16-31) 2022	29.7	13.0	77.2	48.9	3.7	2.7	0
	(28.6)	(13.5)	(83.1)	(42.1)	(4.1)	(3.3)	(0.2)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 31st January, 2022

During the second fortnight of the month i.e., from 16th to 31st January, 2022 the mean maximum temperature increased by 1.2^{0}C and minimum temperature decreased by 1.6^{0}C as compared to previous fortnight. The mean maximum temperatures increased by 0.3^{0}C and mean minimum temperatures decreased by 1^{0}C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon increased by 5.9% and 4% as compared to the previous fortnight. There was no rainfall during the fortnight.

Crop weather situation

There is not much variation in average maximum temperature, wind speed, total rainfall and evaporation rates compared to the average values of previous 5 years. Application of organic manures along with irrigation will increase the availability of nutrients to crops like mango. Mango special application through foliar spraying is recommended during this period.

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Hoppers on mango

- Incidence of hoppers is expected on mango.
- Spray Azadirachtin 1000 ppm @ 3ml/l, if the hopper population is low to moderate.
- If the number exceeds 4 per panicle spray Imidacloprid 200 SL @ 0.3 ml/l or lambda cyhalothrin 5 EC @ 0.5 ml/l at early panicle emergence. This will also take care of thrips. Addition of sticker is essential. Avoid spraying on full bloom to protect pollinators.
- For organic orchards, application of entomopathogen *Metarhizium anisopliae* formulation @ 5ml/L is recommended

Flower webbers/inflorescence caterpillars on mango

- Besides hoppers, inflorescence caterpillars which web the flowers and feed inside are potential pests on mango during January.
- Application of lambda Cyhalothrin 5EC @ 0.5ml/L or Cypermethrin 25 EC @1ml/L are useful to control the pest.

Banana skipper

- Skipper butterfly is becoming a serious pest on banana.
- Larva rolls the leaves and feed by remaining inside. Affected leaves to be mechanically removed and destroyed. In case of severe infestation, spraying of Quinolphos 25EC @ 2ml/L or Chlorpyrifos 20EC @ 2.5ml/L is advised.

Vegetable Crops

Tomato fruit borer:

- With the prevailing weather, incidence of Tomato fruit borer may increase on tomato.
- Spray *Ha*NPV @ 250 LE/ha during evening hours or spray indoxacarb 14.5 SC @ 0.75ml/l,, if the incidence is very high.
- Proper waiting periods are to be followed before harvest of tomatoes.

Tomato moth

- Install Tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre
- Spray Indoxacarb 14.5SC @ 0.75 ml/litre or spinosad 45SC @ 0.3ml/l

Midge on chillies:

- Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage.
- Spray Thiamethoxam 25WG @ 0.3 g/l for their management.

Mites on Tomato

- Incidence of mites is observed and may increase on tomato.
- For their management spray Spiromesfin 22.9 SC @ 1 ml/l or Fenazaquin 10 EC@ 3 g/L.

Aphids on Cucurbits

- Aphid infestation may increase on different cucurbits.
- Spray Imidacloprid 200 SL @ 0.5 ml/l or Thiamethoxam 25 WG @ 0.3 g/l for their management.

Aphids on Beans

- Aphids incidence is observed on beans
- Thoroughly spray Neem soap or Pongamia soap (1 %) or pulverised neem seed powder extract (NSPE) 4 % for their management.

Ornamental Crops

Rose

Aphids

- Aphids incidence is observed on rose.
- Spray Neem soap or Pongamia soap (1%) or pulverised neem seed powder extract (NSPE) 4 % for their management.

Mites

- During the period, incidence of mites is observed heavily on roses grown under polyhouse conditions. Spray Spiromesfin 22.9 SC @ 1 ml/l for their management

Thrips

- For the management of thrips on rose, spray Fipronil 5 SC @ 1.5 ml/litre or Imidacloprid 200 SL @ 0.5 ml/l.

Disease Scenario

Disease forecast and management practices based on weather parameters during the second fortnight of January, 2022

Fruit crops

Banana

- Sigatoka leaf spot (*Mycospheralla* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) diseases need proper attention. Sigatoka could be managed by spraying Propiconazole (0.1%)/ whereas

Crown rot, Anthracnose could be controlled by the pre-harvest sprays involving Tebuconazole (0.1%), besides post harvest dip in Chlorine water (300 ppm) for 10 minutes.

Grape

- Anthracnose and Powdery mildew (*Uncinula necator*) infection may be noticed.
- For the management of anthracnose, application of Tebuconazole (0.1%) can be recommended.
- To control powdery mildew, application of Azoxytrobin (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease
- Rust might continue to be observed in grape vine orchards (var Bangalore Blue) and could be controlled by the treatment with Chlorothalonil (0.2%) or Azoxystrobin (0.05%) along with sticker @ 0.5 ml/ l.

Mango

- Powdery mildew requires attention, application of Wettable suphur (0.2%) is not advisable if high temperature prevails
- Anthracnose spots may increase on foliage. Application of Hexaconazole (0.1%) is recommended to prevent the disease management. Severity of Anthracnose spots might increase. Application of Difenoconazole (0.05%)is recommended along with sticker @ 0.5 ml/ l.

Papaya

- Infection of Black spot (*Asperisporium caricae*) may further increase and Powdery mildew (*Oidium caricae*) infection may also be noticed.
- Application of Chlorothalonil (0.2%) / Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

Pomegranate

- Intensity of leaf and fruit spot disease caused by Pseudocercospora punicae and Anthracnose of fruit and leaf (C. gloeosporioides) may increase further. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.

Vegetable Crops

- Powdery mildew incidence will be high in all vegetables (solaceous and cucurbitaceous). If temperature is not high wettable sulphur can be given. If temperature increases spraying of wettable sulphur should be avoided. Hexaconazole at 0.1% along with sticker 0.5ml/ l will be effective in controlling the powdery mildews in vegetables.
- Anthacnose in vegetables will increase especially in chillies. For anthracnose, application of Difenoconazole (0.05%) along with sticker 0.5ml/l will be effective.

Ornamental Crops

- Powdery mildews in rose and gerbera. Spraying Azoxystrobin at 0.1% along with sticker 0.5ml/l will help in reducing powdery mildew spread under protected cultivation. If not spread extensively, application of Tebuconazole or Hexaconazole at 0.1% with sticker also will help.

Viral Diseases

- Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many viral diseases. Seed treatment with Imidacloprid or spray of Acephate (0.2%) will be effective in controlling vector population.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
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Period: 1st to 15th February, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
February (1-15) 2022	31.4	13.5	71.6	34.1	4.5	2.7	0.0
	(29.1)	(14.2)	(73.0)	(37.1)	(5.2)	(3.7)	(2.4)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th February, 2022

During the second fortnight of the month i.e., from 1st to 15th February, 2022 the mean maximum temperature increased by 1.7^{0}C and minimum temperature increased by 0.5^{0}C as compared to previous fortnight. The mean maximum temperatures increased by 0.5^{0}C and mean minimum temperatures increased by 0.7^{0}C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and afternoon decreased by 5.6% and 14.8% as compared to the previous fortnight. There was no rainfall during the fortnight.

Crop weather situation

Since the temperature is higher compared to the average temperature of same period during previous years, protective irrigation may be taken up and farmers are advised to mulch soil wherever possible. Field preparation can be taken up for summer sowing of vegetables.
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Incidence of Insect pests
Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Hoppers on mango

- Incidence of hoppers is expected on mango.
- Spray Azadirachtin 1000 ppm @ 3ml/l, if the hopper population is low to moderate.
- If the number exceeds 4 per panicle spray Imidacloprid 200 SL @ 0.3 ml/l or lambda cyhalothrin 5 EC @ 0.5 ml/l at early panicle emergence. This will also take care of thrips. Addition of sticker is essential. Avoid spraying on full bloom to protect pollinators.
- For organic orchards, application of entomopathogen *Metarhizium anisopliae* formulation @ 5ml/L is recommended

Flower webbers/inflorescence caterpillars on mango

- Besides hoppers, inflorescence caterpillars which web the flowers and feed inside are potential pests on mango during January.
- Application of lambda Cyhalothrin 5EC @ 0.5ml/L or Cypermethrin 25 EC @1ml/L are useful to control the pest.

Banana skipper

- Skipper butterfly is becoming a serious pest on banana.
- The larva rolls the leaves and feed by remaining inside. Affected leaves to be mechanically removed and destroyed. In case of severe infestation, spraying of Quinolphos 25EC @ 2ml/L or Chlorpyrifos 20EC @ 2.5ml/L is advised.

Vegetable Crops

Tomato fruit borer:

- With the prevailing weather, incidence of Tomato fruit borer may increase on tomato.
- Spray *Ha*NPV @ 250 LE/ha during evening hours or spray indoxacarb 14.5 SC @ 0.75ml/l,, if the incidence is very high.
- Proper waiting periods are to be followed before harvest of tomatoes.

Tomato moth

- Install Tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre
- Spray Indoxacarb 14.5SC @ 0.75 ml/litre or spinosad 45SC @ 0.3ml/l

Midge on chillies:

- Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage.
- Spray Thiamethoxam 25WG @ 0.3 g/l for their management.

Thrips on Chilli

- Spray Fipronil 5 SC @ 1.5 ml/litre if incidence is severe rotate with Difenthiuron 50 WP 1g/litre and Thiacloprid 21.7SC @ 0.5ml/litre @ every 7-10 days based on infestation

Mites on Tomato

- Incidence of mites is observed and may increase on tomato.
- For their management spray Spiromesfin 22.9 SC @ 1 ml/l or Fenazaquin 10 EC@ 3 g/L.

Mites on Chilli

- For their management spray spiromesfin 22.9 SC @ 1 ml/l or fenazaquin 10 EC@ 3 g/L.

Aphids on Cucurbits

- Aphid infestation may increase on different cucurbits.
- Spray Imidacloprid 200 SL @ 0.5 ml/l or Thiamethoxam 25 WG @ 0.3 g/l for their management.

Aphids on Beans

- Aphids incidence is observed on beans
- Thoroughly spray Neem soap or Pongamia soap (1 %) or pulverised neem seed powder extract (NSPE) 4 % for their management.

Ornamental Crops

Rose

Aphids

- Aphids incidence is observed on rose.
- Spray Neem soap or Pongamia soap (1%) or pulverised neem seed powder extract (NSPE) 4 % for their management.

Mites

- During the period, incidence of mites is observed heavily on roses grown under polyhouse conditions. Spray Spiromesfin 22.9 SC @ 1 ml/l for their management

Thrips

- For the management of thrips on rose, spray Fipronil 5 SC @ 1.5 ml/litre or Imidacloprid 200 SL @ 0.5 ml/l.

Disease Scenario

Disease forecast and management practices based on weather parameters during the first fortnight of February, 2022

Fruit crops

Grape

- Anthracnose and Powdery mildew (*Uncinula necator*) infection may be noticed.
- For the management of anthracnose, application of Tebuconazole (0.1%) can be recommended.
- To control powdery mildew, application of Azoxytrobin (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease

Mango

- Powdery mildew requires attention, application of Wettable suphur (0.2%) is not advisable because high temperature prevails
- Anthracnose spots may increase on foliage. Application of Hexaconazole (0.1%) is recommended to prevent the disease management. Severity of Anthracnose spots might increase. Application of Thiophanate methyl (0.1%) is recommended along with sticker @ 0.5 ml/ l.

Vegetable Crops

- Powdery mildew incidence will be high in all vegetables (solaceous and cucurbitaceous). If temperature is not high wettable sulphur can be given. If temperature increases spraying of wettable sulphur should be avoided. Hexaconazole at 0.1% along with sticker 0.5ml/ l will be effective in controlling the powdery mildews in vegetables.
- Anthacnose in vegetables will increase especially in chillies. For anthracnose, application of Tebuconazole (0.1%) along with sticker 0.5ml/l will be effective.

Ornamental Crops

- Powdery mildews is observed in Rose and Gerbera. Spraying Azoxystrobin at 0.05% or Tebuconazole + Trifloxystrobin (0.1%) along with sticker 0.5ml/l will help in reducing powdery mildew spread under protected cultivation. If not spread extensively, application of Tebuconazole or Hexaconazole at 0.1% with sticker also will help.
- Chrysanthemum rust: specifically in the variety locally named as marigold chrysanthemum it is severe. Spray of Chlorothalonil at 0.2% at 15 days interval will reduce the incidence. In severe cases it can be alternated with Propiconazole at 0.1%.

Viral Diseases

- Change in weather especially increase in temperature favours sucking pests which are vectors of many viral diseases. Seed treatment with Imidacloprid or spray of Acephate (0.2%) will be effective in controlling vector population.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
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HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 28th February, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
February (16-28) 2022	31.8	12.5	66.8	38.6	5.85	3.21	0.0
	(31.2)	(14.3)	(68.2)	(28.9)	(6.1)	(3.9)	(3.0)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 28th February, 2022

During the second fortnight of the month i.e., from 16th to 28th February, 2022 the mean maximum temperature increased by 0.4^0C and minimum temperature decreased by 1^0C as compared to previous fortnight. The mean maximum temperatures and minimum temperatures increased by 2.1^0C and 0.1^0C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning decreased by 4.8% and in afternoon increased by 4.5% as compared to the previous fortnight. There was no rainfall during the fortnight.

Crop weather situation

The day temperatures are increasing and there was no rainfall . There is a requirement for more frequent protective irrigations for late rabi vegetables. Mulching may be provided to reduce water loss through evaporation to standing fruit crops.

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Hoppers on mango

- Incidence of hoppers is expected on mango.
- Spray Azadirachtin 1000 ppm @ 3ml/l, if the hopper population is low to moderate.
- If the number exceeds 4 per panicle spray Imidacloprid 200 SL @ 0.3 ml/l or lambda cyhalothrin 5 EC @ 0.5 ml/l at early panicle emergence. This will also take care of thrips. Addition of sticker is essential. Avoid spraying on full bloom to protect pollinators.
- For organic orchards, application of entomopathogen *Metarhizium anisopliae* formulation @ 5ml/L is recommended

Flower webbers/inflorescence caterpillars on mango

- Besides hoppers, inflorescence caterpillars which web the flowers and feed inside are potential pests on mango during January.
- Application of lambda Cyhalothrin 5EC @ 0.5ml/L or Cypermethrin 25 EC @1ml/L are useful to control the pest.

Banana skipper

- Skipper butterfly is becoming a serious pest on banana.
- The larva rolls the leaves and feed by remaining inside. Affected leaves are to be mechanically removed and destroyed. In case of severe infestation, spraying of Quinolphos 25EC @ 2ml/L or Chlorpyrifos 20EC @ 2.5ml/L is advised.

Vegetable Crops

Tomato fruit borer:

- With the prevailing weather, incidence of Tomato fruit borer may increase on tomato.
- Spray *Ha*NPV @ 250 LE/ha during evening hours or spray indoxacarb 14.5 SC @ 0.75ml/l,, if the incidence is very high.
- Proper waiting periods are to be followed before harvest of tomatoes.

Tomato moth

- Install Tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre
- Spray Indoxacarb 14.5SC @ 0.75 ml/litre or spinosad 45SC @ 0.3ml/l

Midge on chillies:

- Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage.
- Spray Thiamethoxam 25WG @ 0.3 g/l for their management.

Thrips on Chilli

- Spray Fipronil 5 SC @ 1.5 ml/litre if incidence is severe rotate with Difenthiuron 50 WP 1g/litre and Thiacloprid 21.7SC @ 0.5ml/litre @ every 7-10 days based on infestation

Mites on Tomato

- Incidence of mites is observed and may increase on tomato.
- For their management spray Spiromesfin 22.9 SC @ 1 ml/l or Fenazaquin 10 EC@ 3 g/L.

Mites on Chilli

- For their management spray Spiromesfin 22.9 SC @ 1 ml/l or Fenazaquin 10 EC@ 3 g/L.

Aphids on Cucurbits

- Aphid infestation may increase on different cucurbits.
- Spray Imidacloprid 200 SL @ 0.5 ml/l or Thiamethoxam 25 WG @ 0.3 g/l for their management.

Aphids on Beans

- Aphids incidence is observed on beans
- Thoroughly spray Neem soap or Pongamia soap (1 %) or pulverised neem seed powder extract (NSPE) 4 % for their management.

Ornamental Crops

Rose

Aphids

- Aphids incidence is observed on rose.
- Spray Neem soap or Pongamia soap (1%) or pulverised neem seed powder extract (NSPE) 4 % for their management.

Mites

- During the period, incidence of mites is observed heavily on roses grown under polyhouse conditions. Spray Spiromesfin 22.9 SC @ 1 ml/l for their management.

Thrips

- For the management of thrips on rose, spray Fipronil 5 SC @ 1.5 ml/litre or Imidacloprid 200 SL @ 0.5 ml/l.

Disease Scenario

Disease forecast and management practices based on weather parameters during the second fortnight of February, 2022

Fruit crops

Grape

- Anthracnose may be noticed.
- For the management of anthracnose, application of Difenoconazole (0.05%) + Mancozeb (0.2%) can be recommended.
- To control powdery mildew, application of Azoxystrobin (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease
- Rust might continue to be noticed in grape vine orchards (var Bangalore Blue) and could be managed by the treatment with Chlorothalonil (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

Mango

- Powdery mildew requires attention, application of Wettable suphur (0.2%) is not advisable because high temperature prevails
- Anthracnose spots may increase on foliage. Application Mancozeb + Dinocap (0.3%) or Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenoconazole (0.05%) is recommended along with sticker @ 0.5 ml/ l.
- Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).

Vegetable Crops

- Anthracnose in vegetables will increase especially in chillies.For anthracnose application of Tebuconazole (0.1%) /Difenoconazole (0.05%) along with sticker 0.5ml/l will be effective.

Viral Diseases

- Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many virus diseases. Seed treatment with Imidacloprid or spray of Acephate (0.2%) will be effective in controlling vector population.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th March, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
March (1-15) 2022	32.5	11.7	50.9	29.3	7.2	4.8	0.0
	(32.7)	(17.6)	(67.3)	(32.7)	(6.8)	(3.7)	(11.3)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th March, 2022

During the first fortnight of the month i.e., from 1st to 15th March, 2022 the mean maximum temperature increased by 0.7^0C and minimum temperature decreased by 0.8^0C as compared to previous fortnight. The mean maximum temperatures and minimum temperatures increased by 1.5^0C and 3.3^0C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and afternoon decreased by 15.9% and 9.3% respectively as compared to the previous fortnight. There was no rainfall during the fortnight.

Crop weather situation

There was absolutely no rainfall during the last fortnight compared to previous 5 years' average. Similarly there was increased wind speed and evaporation rate. Supplemental irrigation may be given wherever required. To avoid fruit drop and crack in mango, 0.1% boric acid is recommended

Incidence of Insect pests
Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Hoppers on mango

- On mango, incidence of hoppers may continue wherever flowering is delayed.
- Spray Azadirachtin @ 3ml/L. or Thiamethoxam 25WG @ 0.3 g/L. This will also be helpful in checking the thrips.

Mango Stone Weevil

- Wherever fruits have reached lemon size (2-4 cm diameter), a spray of Deltamethrin 2.5EC @ 1ml/L will be effective.

Fruit fly Management

- In orchards where fruit set has occurred early and have attained full size, install Methyl Eugenol based fruit fly traps @ 6/acre.
- Collect and destroy the fallen fruits.

Grapes

Mealy bugs on grapes

- Incidence of mealybugs may increase during this period.
- Encourage natural enemies such as lady bird beetle. If incidence is high then spray Difenthiuron 50 WP 1g/litre and repeat the spray after 2 weeks.

Vegetable Crops

Leaf Minor on Tomato

- Incidence of leaf miner is observed on tomato. For its management spray Indoxacarb 14.5SC@ 0.75 ml/litre or spinosad45SC @ 0.3ml/l

Tomato moth

- Install Tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre
- Spray Indoxacarb 14.5 SC @ 0.75 ml/litre or Spinosad 45 SC @ 0.3ml/l

Mites on Tomato:

- For the management of mites on tomato, Spiromesifen 22.9 SC@ 0.5ml/litre

Whiteflies on Tomato:

- Incidence of whiteflies is noticed on tomato. For their management spray difenthiuron 50 WP 1g/litre

Brinjal Shoot and Fruit borer

- For the management of brinjal shoot and fruit borer, spray Rynaxypyr 20SC @ 0.3 ml/l rotate with Emamectin benzoate 5SG 0.3g/liter followed by Indoxacarb 14.5SC @ 0.75 ml/litre.

Ornamental Crops

Thrips on Rose

- For the management of thrips on rose, spray Imidacloprid 17.8SL @ 0.5 ml/l or Fipronil 5 SC @ 1.5ml/litre.

Disease Scenario

Disease forecast and management practices based on weather parameters during the first fortnight of March, 2022

Fruit crops

Grape

- Anthracnose infection maybe noticed.
- For Anthracnose application of Difenoconazole (0.05%)/ Tebuconazole (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease.

Mango

- Anthracnose spots might further increase on foliage. Application of Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenoconazole (0.05%) is recommended along with sticker @ 0.5 ml/ l.

- Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides

Vegetable Crops

- Anthracnose in vegetables will increase especially in chillies.
- For anthracnose, application of Difenoconazole (0.05%)/ Tebuconazole (0.1%) along with sticker 0.5ml/l will be effective.

Viral Diseases

- Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many viral diseases. Seed treatment with Imidacloprid or spray of Acephate (0.2%) will be effective in controlling vector population.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 31st March, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
March (16-31) 2022	34.3	17.8	66.2	34.6	5.32	2.44	11.7
	(34.1)	(17.6)	(69.3)	(33.5)	(7.2)	(3.7)	(11.4)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 31st March, 2022

During the second fortnight of the month i.e., from 16th to 31st March, 2022 the mean maximum temperature and minimum temperature increased by 1.8^{0}C and 6.1^{0}C as compared to previous fortnight. The mean maximum temperatures increased by 1.4^{0}C and minimum temperatures remained same as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and afternoon increased by 15.3% and 5.3% respectively as compared to the previous fortnight. There was 11.7 mm rainfall during the fortnight.

Crop weather situation

There was not much variation in the weather parameters during this fortnight compared to average values of previous 5 years. Protective irrigation may be given to all the summer vegetable crops. Mulching may be applied to reduce the evaporation losses.

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Hoppers on mango

- On mango, incidence of hoppers may continue wherever flowering is delayed.
- Spray Azadirachtin @ 3ml/L or Thiamethoxam 25WG @ 0.3 g/L Lambda Cyhalothrin 5 EC @ 0.5 ml/l at early panicle emergence. This will also be helpful in checking the thrips.

Mango Stone Weevil

- Wherever fruits have reached lemon size (2-4 cm diameter), a spray of Deltamethrin 2.5SC @ 1ml/L will be effective.

Fruit fly Management

- In orchards where fruit set has occurred early and have attained full size, install Methyl Eugenol based fruit fly traps @ 6/acre.
- Collect and destroy the fallen fruits.

Grapes

Mealy bugs on grapes

- Incidence of mealybugs may increase during this period.
- Encourage natural enemies such as lady bird beetle. If incidence is high, then spray Difenthiuron 50 WP 1g/litre and repeat the spray after 2 weeks.

Vegetable Crops

Leaf Minor on Tomato

- Incidence of leaf miner is observed on tomato. For its management spray neem seed kernel extract 4% from nursery till flowering @ 7-10 days' intervals.

Tomato moth

- Install Tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre
- Spray Indoxacarb 14.5 SC @ 0.75 ml/litre or Spinosad 45 SC @ 0.3ml/l.

Mites on Tomato:

- For the management of mites on tomato, Spiromesifen 22.9 SC@ 1ml/litre

Whiteflies on Tomato:

- Incidence of whiteflies is noticed on tomato. For their management spray Difenthiuron 50 WP 1g/litre

Brinjal Shoot and Fruit borer

- For the management of brinjal shoot and fruit borer, spray Rynaxypyr 18.5SC @ 0.3 ml/l rotate with Emamectin benzoate 5SG 0.3g/liter followed by Indoxacarb 14.5SC @ 0.5 ml/litre.

Black thrips on chilly

- Black thrips incidence is increasing on chilli and capsicum; it is advised to farmers to raise seedlings under Nylon mesh thrips proof conditions, use thrips free seedlings
- Barrier crop: sow maize all along the border 30 days before chilli transplantation
- Root dipping of the seedlings in Imidacloprid solution @ 0.5 ml per litre of water for one hour during transplanting
- After planting: regular alternate weekly spraying of Imidacloprid 17.8 SL 0.5ml/litre+, Neem oil 2.5ml/litre, fipronil80WG@40g/acre, Fipronil 40%+ Imidaclorpid 40%@40g/acre, Cyantraniliprole 10%@240ml/acre, acetamiprid 20SP@40g/acre, spirotetramat1 50 OD@160ml/acre, Pongamia oil 2.5ml/litre
- Every 15days interval chlropyrifos soil drenching is required to kill pupa that are in soil.

Note: None of these chemicals approved by CIBRC, this recommendation is by adhoc.

Ornamental Crops

Thrips on Rose

- For the management of thrips on rose, spray Imidacloprid 17.8SL @ 0.5 ml/l or Fipronil 5 SC @ 1.5ml/litre.

Disease Scenario

Disease forecast and management practices based on weather parameters during the first fortnight of March, 2022

Fruit crops

Grape

- Anthracnose infection maybe noticed.
- For anthracnose application of Difenoconazole (0.05%)/ Tebuconazole (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease.

Mango

- Anthracnose spots might further increase on foliage. Application of Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenoconazole (0.05%) is recommended along with sticker @ 0.5 ml/ l.

- Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.3%)

Vegetable Crops

- Anthracnose in vegetables will increase especially in chillies.
- For anthracnose, application of Difenoconazole (0.05%)/ Thiophanate Methyl (0.1%)/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) along with sticker 0.5ml/l will be effective.

Viral Diseases

- Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many viral diseases. Seed treatment with Imidacloprid or spray of Acephate (0.2%) will be effective in controlling vector population.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th April 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
April (1-15) 2022	34.7	18.5	64.1	32.9	6.1	3.09	33.0
	(34.0)	(18.8)	(70.4)	(32.3)	(6.9)	(4.5)	(11.2)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th April 2022

During the first fortnight of the month i.e., from 1st to 15th April 2022, the mean maximum and minimum temperature increased by 0.4^0C and 0.7^0C respectively as compared to previous fortnight. The mean maximum temperatures decreased by 0.1^0C and mean minimum temperatures increased by 1.2^0C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and afternoon decreased by 2.1% and 1.7% respectively as compared to the previous fortnight. There was 33.0 mm rainfall during the fortnight.

Crop weather situation

There was about 3 times more rainfall than the average value of previous 5 years rainfall. Farmers whose soils are acidic are advised to apply lime and incorporate it into the soil. Wherever excess water stagnation is there, may be drained out from the basins of crops like papaya Vegetable crops may be given one spray of IIHR vegetable special

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Mango fruit fly (*Bactrocera dorsalis*)

- As the fruits have attained maturity stage, incidence of fruit fly is expected.
- Install methyl eugenol traps @ 6 /acre. Traps can be procured from IIHR or KVKs or firms licensed to manufacture IIHR traps.
- Collection and destruction of fallen fruits
- Bait splash on tree trunks with 10% jaggery solution mixed with Deltamethrin 2.8EC (5ml/litre)
- Community approach at village level is recommended for the effective management of this pest

Grapes

Grapes Flea Beetle:

- Incidence of flea beetle is expected on newly pruned vines.
- Remove all loose barks
- Rake the soil in basin to expose the grubs and pupae to sunlight
- At early bud sprout –spray of Imidacloprid 200 SL @ 0.3ml/L or Lambda-cyhalothrin 5 EC @ 0.5ml/L

Grape thrips:

- On newly pruned grapes, thrips infestation on leaves is expected.
- Spray *Metarhizium anisopliae* formulation @ 2ml/L two times at weekly interval or Fipronil 5SC @ 1.5 ml/L twice at fortnightly interval

Vegetable Crops

Brinjal shoot and fruit borer, *Leucinodes orbonalis*

- Release of *Trichogramma chilonis* @ 75,000 per week (for four weeks), if the incidence is moderate.
- Install pheromones traps in the field

- If the incidence is very severe, for the management of brinjal shoot and fruit borer, spray Rynaxypyr 20 SC @ 0.3 ml/l rotate with Emamectin benzoate 5 SG @ 0.3g/liter followed by Indoxacarb 14.5 SC @ 0.75 ml/litre.

Mites on tomato and Ridge gourd

- Rising temperatures favour mite multiplication. For the management of mites, spray Spiromesifen 22.9SC @ 0.5ml/L or Fenazaquin 10 EC @ 1.5ml/L at fortnight interval.

Black thrips on chilli (tentative management only)

- Black thrips incidence is increasing on chilli and capsicum; it is advised to farmers to raise seedlings under nylon mesh thrips proof conditions,
- Barrier crop: sow maize all along the border 30 days before chilli transplantation
- Root dipping of the seedlings in Imidacloprid 17.8 SL solution @ 0.5 ml per litre of water for one hour during transplanting
- After planting: regular alternate weekly spraying of Imidacloprid 17.8 SL 0.5ml/litre + neem oil 2.5ml/litre, Fipronil 80WG@40g/acre, Fipronil 40% + Imidaclorpid40%@40g/acre, Cyantraniliprole10%@240ml/acre, Acetamiprid 20SP@40g/acre, Spirotetramat 150 OD@160ml/acre, Pongamia oil 2.5ml/litre
- Every 15days interval (depending upon the outbreak) Chlropyrifos (2.5ml/l) soil drenching is required to kill pupa that are in soil.

Note: None of these chemicals are approved by CIBRC, this is by adhoc

Two spotted spider mite, *Tetranychus urticae* on rose

- During the period, severe incidence of mites is observed on roses grown under playhouse conditions. Spray Abamectin @ 0.5 ml/l or Fenazaquin 10 EC @ 1.5ml/L at fortnight interval for their management

Disease Scenario

Disease forecast and management practices based on weather parameters during the first fortnight of April, 2022

Fruit crops

Mango

- Anthracnose spots on leaves may be noticed wherever short summer showers have occurred. In late flowering varieties, blossom blight can be seen. Spraying of Carbendazim or Thiophanate Methyl at 0.1% will stop further spread.
- To prevent anthracnose on fruits later pre harvest sprays with Chlolrothalonil at 0.2% may be followed. In early maturing varieties if anthracnose is noticed, spraying of Carbendazim or Thiophanate Methyl at 0.1% will stop further spread.
- Sooty mould should be managed. Sooty mould follows the hopper damage. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Hopper management is important with systemic insecticide like Imidachloprid at 0.03%
- Pre-harvest spraying mention earlier will take care stem end rot. However, the fruits have to be harvested with 2-3 inches of pedicel. Desapping has to be followed before storage.

Pomegranate

- One spray of copper based fungicides is recommended to avoid the spread of bacterial blight that can increase after the summer showers.

Vegetable Crops

- Anthracnose in vegetables will increase especially in chillies.
- For anthracnose, application of Difenoconazole (0.05%)/ Tebuconazole (0.1%) along with sticker 0.5ml/l will be effective.

Nursery/ seedlings

- In nursery the preventive spray with neem soap or neem oil is recommended to avoid the virus vectors that transmit the virus disease. One spray of a systemic insecticide also will help.

Viral Diseases

- Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many viral diseases. Seed treatment with Imidacloprid or spray of Acephate (0.2%) will be effective in controlling vector population.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 30th April 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
March (16-31) 2022	35.2	19.1	65.3	36.1	5.89	2.17	54.7
	(34.5)	(22.7)	(74.1)	(40.2)	(6.2)	(3.4)	(35.1)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 30th April 2022

During the second fortnight of the month i.e., from 16th to 30th April 2022, the mean maximum temperature and minimum temperature increased by 0.5^0C and 0.6^0C as compared to previous fortnight. The mean maximum temperatures and minimum temperatures increased by 0.5^0C and 3.9^0C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and afternoon increased by 1.2% and 3.2% respectively as compared to the previous fortnight. There was 54.7 mm rainfall during the fortnight.

Crop weather situation

There was good amount of rain fall during the last fortnight. Wind speed and evaporation rate were considerably low. Summer showers received during this fortnight might have eased the irrigation requirements. Intercultural operations can be taken up in the orchards as soil conditions are good now.

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Mango fruit fly, *Bactrocera dorsalis*

- As the fruits had attained maturity stage, incidence of fruit fly is expected.
- Install methyl eugenol traps @ 6 /acre. Traps can be procured from IIHR or KVKs or firms licenced to manufacture IIHR traps.
- Collection and destruction of fallen fruits
- Bait splash on tree trunks with 10% jaggery solution mixed with Deltamethrin
- Community approach at village level is recommended for the effective management of this pest

Grapes

Grapes Flea Beetle:

- Incidence of flea beetle is expected on newly pruned vines.
- Remove all loose bark
- Rake the soil in basin to expose grubs and pupae to sunlight and mechanical injury
- At early bud sprout –spray of Imidacloprid 17. 8 SL @ 0.3ml/L or Lambda-cyhalothrin 5 EC @ 0.5ml/L

Grape thrips:

- On newly pruned grapes, thrips infestation on leaves is expected.
- Spray *Metarhizium anisopliae* formulation @ 2ml/L two times at weekly interval or Fipronil 5 SC @ 1.5ml/L twice at fortnightly interval

Vegetable Crops

Brinjal shoot and fruit borer, *Leucinodes orbonalis*

- Release of *Trichogramma chilonis* @ 75,000 per week (for four weeks), if the incidence is moderate.
- Install pheromones traps in the field
- If the incidence is very severe, for the management of brinjal shoot and fruit borer, spray Rynaxypyr 20 SC @ 0.3 ml/l rotate with Emamectin benzoate 5 SG @ 0.3g/liter followed by Indoxacarb 14.5 SC @ 0.75 ml/litre.

Black thrips on chilli (tentative management only)

- Black thrips incidence is increasing on chilli and capsicum; it is advised to farmers to raise seedlings under Nylon mesh thrips proof conditions, use thrips free seedlings
- Barrier crop: sow maize all along the border 30 days before chilli transplantation
- Root dipping of the seedlings in Imidacloprid solution @ 0.5 ml per litre of water for one hour during transplanting
- After planting: regular alternate weekly spraying of Imidacloprid 17.8 SL 0.5ml/litre+, Neem oil 2.5ml/litre, Fipronil 80WG @ 40g/acre, Fipronil 40% + Imidaclorpid 40% @ 40g/acre, Cyantraniliprole 10% @ 240ml/acre, Acetamiprid 20SP @ 40g/acre, Spirotetramat 150 OD @ 160ml/acre, Pongamia oil 2.5ml/litre
- Every 15days interval Chlropyrifos soil drenching is required to kill pupa that are in soil (**only under outbreak conditions)**.

Ornamental Crops

Two spotted spider mite, *Tetranychus urticae* on rose

- Spray Abamectin 1.8 EC @ 0.5 ml/l under polyhouse conditions

Note: None of these chemicals approved by CIBRC, this recommendation is by adhoc.

Disease Senario

Disease forecast and management practices based on weather parameters during the first fortnight of March, 2022

Fruit crops

Mango

- Anthracnose spots might further increase on foliage. Application of Thiophanate methyl (0.1%) is recommended for the disease management. Addition of sticker @ 0.5 ml/ l while spraying is recommended.
- Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%)

Pomegranate

- After having the crop in the earlier months when the farmers are giving rest period, that time also one spray of copper based fungicides is recommended to avoid the spread of bacterial blight that can increase after summer showers.

Vegetable Crops

Nursery/ seedlings:

- In nursery the preventive spray with neem soap or neem oil is recommended to avoid the virus vectors that transmit the virus disease. One spray of systemic insecticide also will help.

Viral Diseases

- Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many viral diseases. Seed treatment with Imidacloprid or spray of Acephate (0.2%) will be effective in controlling vector population.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th May 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
May (1-15) 2022	32.8	20.0	77.8	54.8	4.69	3.62	96.0
	(33.9)	(21.4)	(76.9)	(47.1)	(5.5)	(3.4)	(67.2)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th May 2022

During the first fortnight of the month i.e., from 1st to 15th May 2022, the mean maximum and minimum temperature decreased by 2.4^{0}C and 0.9^{0}C respectively as compared to previous fortnight. The mean maximum and minimum temperature decreased by 0.6^{0}C and 1.3^{0}C respectively as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and afternoon increased by 12.5% and 18.7% respectively as compared to the previous fortnight. There was 96.0 mm rainfall during the fortnight.

Crop weather situation

There was good amount of rainfall, almost one and half times more rainfall than the average value of previous 5 years. Relative humidity is also slightly higher during the last fortnight. For crops like papaya which do not tolerate water stagnation, drainage to remove excess standing water may be provided. Due to good soil moisture content nutrient uptake will be good. Excess rain may affect fruit quality in mango and may increase mango fruit drop.

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Mango fruit fly (*Bactrocera dorsalis*)

- As the fruits have attained maturity stage, incidence of fruit fly is expected.
- Install methyl eugenol traps @ 6 /acre. Traps can be procured from IIHR or KVKs or firms licensed to manufacture IIHR traps.
- Collection and destruction of fallen fruits
- Community approach at village level is recommended for the effective management of this pest

Vegetable Crops

Brinjal shoot and fruit borer, *Leucinodes orbonalis*

- Release of *Trichogramma chilonis* @ 75,000 per week (for four weeks), if the incidence is moderate.
- Install pheromones traps in the field
- Collect and destroy all the affected shoot and fruits
- If the incidence is very severe, for the management of brinjal shoot and fruit borer, spray Rynaxypyr 20 SC @ 0.3 ml/l rotate with Emamectin benzoate 5 SG @ 0.3g/liter followed by Indoxacarb 14.5 SC @ 0.75 ml/litre.

Black thrips on chilli (tentative management only)

- Black thrips incidence is increasing on chilli and capsicum; it is advised to farmers to raise seedlings under nylon mesh thrips proof conditions, use thrips free seedlings
- Barrier crop: sow maize all along the border 30 days before chilli transplantation
- Root dipping of the seedlings in Imidacloprid 17.8 SL solution @ 0.5 ml per litre of water for one hour during transplanting
- After planting: regular alternate weekly spraying of Imidacloprid 17.8 SL 0.5ml/litre + neem oil 2.5ml/litre, Fipronil 80WG@40g/acre, Fipronil 40% + Imidaclorpid 40% @ 40g/acre, Cyantraniliprole 10% @ 240ml/acre, Acetamiprid 20SP @ 40g/acre, Spirotetramat 150OD @ 160ml/acre, Pongamia oil 2.5ml/litre
- Every 15days interval (depending upon the outbreak) Chlropyrifos (2.5ml/l) soil drenching is required to kill pupa that are in soil.

Note: None of these chemicals are approved by CIBRC, these are need based recommendations

Two spotted spider mite, *Tetranychus urticae* on rose

- Spray Abamectin 1.8EC @ 0.5 ml/l under polyhouse conditions

Disease Scenario

Disease forecast and management practices based on weather parameters during the first fortnight of April, 2022

Fruit crops

Mango

- Anthracnose (*C. gloeosporioides*) and stem end rot (*L. theobromae*) occur in mango fruits during ripening.
- Pre-harvest sprays with Tebuconazole 0.1% followed by post-harvest treatments with hot water (52^{o}C) for ten minutes may be followed.
- Care should be taken that at the time of spraying there should be minimum of 15-20 days time before the harvest.

Grape

- For Anthracnose spraying with Propineb (0.2%) or Chlorothalonil (0.2%) are effective along with sticker @ 0.5 ml/ l.

Pomegranate

- Nodal Blight needs further attention due to the intermittent summer showers.
- Application of COC (0.2%) along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

Banana

- Low incidence of Sigatoka (*Mycospheralla* sp) and other leaf spots needs attention.
- The disease can be managed by the application of with Propiconazole 0.1% whereas crown rot, anthracnose and macrophoma fruit spot disease (Specially on var. Grand Naine) could be controlled by the pre-harvest sprays involving Chlorothalonil 0.2%.

Papaya

- Infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may further increase.

- Application of Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

Guava

- Canker (*Pestalotiopsis psidi*) in greenish immature guava fruits and styler end rot (*Phomopsis psidi*) and anthracnose (*C. gloeosporioides)* should be taken care.
- For the disease management application of Zineb (0.3%) along with sticker (0.5 ml /l) should be followed.

Vegetable Crops

Tomato

- To prevent the early leaf blight disease free seedlings are to be used.
- Seed treatment with Captan or Thiram (3g per kg of seeds) or seedling dip with Copper oxychloride (0.3%) also protects plants from various soil borne pathogens.
- It is the time for the protective sprays of contact fungicides like Mancozeb, Copper oxychloride or Chlorothalanil on tomato to avoid early leaf blight.
- In case of serious spread due to rain splash follow up spray with Propineb (0.2%) or Meitiram (0.2%) or Pyraclostrobin + Metiram (0.2%) at fortnightly interval.

Onion

- To avoid the purple blotch and Stemphyllum leaf blight application of fungicides such as Chlorothalonil (0.2 %) or Propineb (0.2 %) or Mancozeb (0.2%) at fortnightly intervals from onset of the disease will be useful.

Cucurbits

- To avoid the spread of downy mildew spraying Chlorothalonil (0.2%) or Mancozeb(0.2%) or Metalaxyl –Mancozeb (0.2%) or Fosetyl-AI (0.2%) or Cymoxanil-mancozeb(0.2%) at 10 day intervals from onset of the disease.

Viral Diseases in tomato and chilli

- To avoid the spread of viral diseases spraying insecticides like Monocrotophos (0.15%), Acephate (0.15%) or Hostothion (0.1 %) at fortnightly intervals after transplanting till flowering stage

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 31st May 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
March (16-31) 2022	30.6	19.7	76.4	54.9	4.33	3.48	121.2
	(32.6)	(21.2)	(84.1)	(56.0)	(5.8)	(4.6)	(114.8)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 31st May 2022

During the second fortnight of the month i.e., from 16th to 31st May 2022, the mean maximum temperature and minimum temperatures decreased by 2.2^0C and 0.3^0C as compared to previous fortnight. The mean maximum temperatures and minimum temperatures decreased by 1.3^0C and 0.2^0C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning decreased by 1.4% and in the afternoon increased by 0.1% as compared to the previous fortnight. There was 121.2 mm rainfall during the fortnight.

Crop weather situation

The rainfall during the fortnight was slightly above normal. Wind speed and evaporation rate were lower than the average values of previous 5 years. Land preparation for *Kharif* crops may be taken up on dry days. Green manuring crops may be taken up wherever possible, in case of acid soils, liming may be taken up.

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Mango stem borer

- This period coincides with the emergence of adult beetles of trunk borer, *Batocera rufomaculata*.
- Plug active holes (can be diagnosed with the presence of fresh chewed wood material and excreta) with cotton dipped in Dichlorovos @ 5ml/L and close with mud.
- Affected tree trunks can be wrapped with nylon mesh to trap the emerging beetles.

Vegetable Crops

Fruit fly on cucurbits

- For the management of fruit fly (*Zeugodacus cucurbitae*) on cucurbits, following integrated approach may be followed.
- Installing cue lure traps @ 10 traps/acre + sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + Jaggery @ 10g/L) at 10 days interval from the date of flowering.

Black thrips on chilli (tentative management only)

- Black thrips incidence is increasing on chilli and capsicum; it is advised to farmers to raise seedlings under Nylon mesh thrips proof conditions, use thrips free seedlings
- Barrier crop: sow maize all along the border 30 days before chilli transplantation
- Root dipping of the seedlings in Imidacloprid solution @ 0.5 ml per litre of water for one hour during transplanting
- After planting: regular alternate weekly spraying of Imidacloprid 17.8 SL 0.5ml/litre+, Neem oil 2.5ml/litre, Fipronil 80WG @ 40g/acre, Fipronil 40% + Imidaclorpid 40% @ 40g/acre, Cyantraniliprole 10% @ 240ml/acre, Acetamiprid 20SP @ 40g/acre, Spirotetramat 150 OD @ 160ml/acre, Pongamia oil 2.5ml/litre
- Every 15 days interval Chlropyrifos soil drenching is required to kill pupa that are in soil (**only under outbreak conditions)**.

Root-knot nematode in tomato

- Raise healthy transplants on soil applied with FYM or vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.

- In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m^2. This can also be mixed with water and applied as soil drench @ 2l/m^2. The same can be thoroughly filtered and sent along with drip or sprayed.

Ornamental Crops

Whitefly on Gerbera (polyhouses)

- Spray Diafenthiuran 50WP @ 1 g/l followed by Dnetofuran 20SG @1g/litre
- Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

Rose Thrips,

- Spray Imidacloprid 17.8SL @ 0.5 ml/l with Pongamia oil 0.5%.
- Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- Drench the soil with Imidacloprid 17.8SL @ 0.5ml/l for killing pupae in the soil.

Midge on crossandra

- Incidence of midge is increasing on crossandra. For its management spray Imidacloprid 17.8SL @ 0.5 ml/l.

Disease Scenario

Disease forecast and management practices based on weather parameters during the second fortnight of May, 2022

Fruit crops

Mango

- Anthracnose (*C. gloeosporioides*) and stem end rot (*Lasiodiplodia theobromae* and *Pestalotia* mangiferae) are common in mango fruits during ripening.
- Pre-harvest sprays with Tebuconazole followed by post-harvest treatments with Hot water (52ºC) for ten minutes is recommended.

Grape

- Grapevines should be continued to be protected against the infection of downy mildew by the application of 0.4g Dimethomorph + 2.00 g Mancozeb /l or Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l.
- Lower surface of the leaves on the vines to be sprayed properly anthracnose spraying with Propineb (0.2%)/ Chlorothalonil (0.2%) are effective along with sticker @ 0.5 ml/ l.

Papaya

- Infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may further increase. Application of Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

Pomegranate

- Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) may increase further. Application of Chlorothalonil (0.2%) /Propineb (0.2%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.
- Nodal Blight needs further attention. Application of COC (0.2%) along with the sticker @ 0.5ml/l should be applied at the interval of 15-20 days.

Guava

- Canker (*Pestalotiopsis psidi*) in greenish immature guava fruits and styler end rot (*Phomopsis psidi*) and anthracnose (*C. gloeosporioides)* should be taken acre.
- For the disease management application of Zineb (0.3%) or Ziride (0.4%) should be followed.

Vegetable Crops

- In cucurbits it is time to monitor the downy mildews. Continuous rain and warm weather favour the disease. Spray of Metalaxyl at 0.2% will reduce the spread.
- In tomato with the onset of monsoon the spread of buck eye spot damage on fruits may occur. This can be prevented by spray of copper oxychloride at 3g/l and in severe cases spray with Fenamidon + Mancozeb at 0.2% will reduce the disease incidence.
- In chillies the leaf curl will spread further. Suitable insecticides to be applied to control the insect vectors.

Ornamentals

- The black spot of rose can be managed by spray with Trifloxystrobin + Tebuconazole at 0.1% at 15 days interval.
- For the downy mildews spray with Metalaxyl + Mancozeb at 0.2% will help.

CROP WEATHER SITUATION

METEOROLOGICAL DATA OF

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH

HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th June 2022

Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
June (1-15) 2022	32.0	19.4	77.3	49.7	5.17	3.59	47.8
	(30.1)	(21.0)	(85.2)	(67.2)	(4.9)	(6.0)	(49.3)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th June 2022

During the first fortnight of the month i.e., from 1st to 15th June 2022, the mean maximum and increased by 1.4^{0}C and the mean minimum temperature decreased by 0.3^{0}C as compared to previous fortnight. The mean maximum and minimum temperature decreased by 2.5^{0}C and 0.2^{0}C respectively as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and afternoon increased by 0.9% and 1.1% respectively as compared to the previous fortnight. There was 47.8 mm rainfall during the fortnight.

Crop weather situation

There was not much variation in the weather parameters during the last fortnight compared to the average value of previous 5 years except the relative humidity which was lower. The soil condition will be good with sufficient soil moisture for field preparation for planting *Kharif* vegetables or other horticultural crops. The soil condition is also conducive for application of either basal dose or top dressing of required nutrients to horticultural crops

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Mango stem borer

- This period coincides with the emergence of adult beetles of trunk borer, *Batocera rufomaculata*.
- Plug active holes (can be diagnosed with the presence of fresh chewed wood material and excreta) with cotton dipped in Chloropyrifos @ 5ml/L and close with mud.
- In case of severe infestation IIHR developed Sealer cum healer can be used.
- Affected tree trunks can be wrapped with nylon mesh to trap the emerging beetles.

Vegetable Crops

Fruit fly on cucurbits

- For the management of fruit fly (*Bactrocera cucurbitae*) on cucurbits, following integrated approach may be followed.
- Installing cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + jaggery @ 10g/L) at 10 days interval from the date of flowering.

Chilli Thrips,

- Spray Fipronil 5 SC (1.5 ml/l) or imidacloprid 200 SL (0.3 ml/l) alternatively at fortnightly interval.

Root-knot nematode in Tomato

- Raise healthy transplants on soil applied with FYM or Vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.
- In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m^2. This can also be mixed with water and applied as soil drench @ 2l/m^2. The same can be thoroughly filtered and sent along with drip or sprayed.

Flower Crops

Whitefly on Gerbera (polyhouses)

- Spray Diafenthiuran 50 WP @ 1 g/l followed by Dinetofuran 20 SG@ 1g/litre

- Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

Rose Thrips

- Spray Imidacloprid 17.8 ml/l or Dimethoate 30 EC @ 2ml/l with pongamia oil 0.5%.
- Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

Midge on crossandra

- Incidence of midge is increasing on crossandra. For its management spray Imidacloprid 17.8 SL@ 0.5 ml/l.

Disease Scenario

Disease forecast and management practices based on weather parameters during the first fortnight of June 2022.

Fruit crops

Mango

- Anthracnose (*C. gloeosporioides*) and stem end rot (*L. theobromae*) occur in mango fruits during ripening.
- Pre-harvest sprays with Carbendazim (0.1%) or Thiophanate methyl (0.1%) followed by post-harvest treatments with hot water (52^{o}C) for ten minutes may be followed.

Grape

- Grapevines should be continued to be protected against the infection of downy mildew by the application of 0.4g Dimethomorph + 2.00 g Mancozeb /l or Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l.
- Lower surface of the leaves on the vines to be sprayed properly
- Anthracnose spraying with Propineb (0.2%)/ Chlorothalonil (0.2%)/Carbendazim (0.1%)/ Thiophanate methyl (0.1%) are effective along with sticker @ 0.5 ml/ l.

Papaya

- Infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may further increase. Application of Chlorothalonil (0.2%) Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

Pomegranate

- Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) may increase further. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.
- Nodal Blight needs further attention. Application of COC (0.2%) along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

Guava

- Canker (*Pestalotiopsis psidi*) in greenish immature guava fruits and styler end rot (*Phomopsis psidi*) and anthracnose (*C. gloeosporioides)* should be taken care.
- For the disease management application of Zineb (0.3%) or Ziride (0.4%) followed with Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ along with sticker (0.5 ml /l) should be followed.

Vegetable Crops

- In cucurbits it is time to monitor the downy mildews. Continuous rain and warm weather favour the disease. Spray of Metalaxyl at 0.2% will reduce the spread.
- In tomato with the onset of monsoon the spread of buck eye spot damage on fruits may occur. This can be prevented by spray of copper oxy chloride at 3g/l and in severe cases spray with Fenamidon + Mancozeb at 0.2% will reduce the disease incidence.
- In chillies the leaf curl will spread further. Suitable insecticides to be applied to control the insect vectors.

Ornamentals

- The black spot of rose can be managed by spray with Trifloxystrobin + Tebuconazole at 0.1% at 15 days interval. For the downy mildews spray with Metalaxyl + Mancozeb at 0.2% will help.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 30th June 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
June (16-30) 2022	29.4	20.0	79.6	55.8	4.63	4.38	155.4
	(29.4)	(20.5)	(83.9)	(65.4)	(4.1)	(6.2)	(28.8)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 30th June 2022

During the second fortnight of the month i.e., from 16th to 30th June 2022, the mean maximum temperature decreased by 2.6^{0}C and the mean minimum temperatures increased by 0.6^{0}C as compared to previous fortnight. The mean maximum and minimum temperatures decreased by 0.7^{0}C and 0.5^{0}C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and the afternoon increased by 2.3% and 6.1% respectively as compared to the previous fortnight. There was 155.4 mm rainfall during the fortnight.

Crop weather situation

During last fortnight rainfall was about 5 times higher than the average rainfall received during past 5 years. Wind speed and evaporation rate were lower. There may be water stagnation due to heavy rainfall during this period. The excess water in the basins of fruit crops especially papaya crop may be drained out of the basins. Once the soil conditions are better field preparation and basal dose of fertilizer application may be done.

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Mango stem borer

- This period coincides with the emergence of adult beetles of trunk borer, *Batocera rufomaculata*.
- Plug active holes (can be diagnosed with the presence of fresh chewed wood material and excreta) with cotton dipped in Chlorpyriphos @ 5ml/L and close with mud.
- In case of severe infestation IIHR developed Sealer cum healer can be used.

Vegetable Crops

Fruit fly on cucurbits

- For the management of fruit fly (*Zeugodacus cucurbitae*) on cucurbits, following integrated approach may be followed.
- Installing cue lure traps @ 10 traps/acre + sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + Jaggery @ 10g/L) at 10 days interval from the date of flowering.

Chilli Thrips

- Grow border crop like maize 20-25 days before transplantation of main crop
- Install blue sticky traps @ 12-15/acre
- Spray Fipronil 5 SC (1.5 ml/l) or Imidacloprid 200 SL (0.3 ml/l) alternately at fortnightly interval.

Cut worms

- Incidence of cutworms may be seen up to 15-20 days after transplantation of vegetable crops
- Young seedlings will be cut at ground level by cut worm larvae during night time
- Drench the soil around the root zone of the crop with Imidacloprid 200 SL @ 5ml/l for killing larvae in the soil

Legumes pod borer

- Spray Indoxacarb14.5 SC @ 0.75ml/litre at 10 days interval from flowering stage

Root-knot nematode in tomato

- Raise healthy transplants on soil mixed with Neem cake @ 50kg + *Trichoderma harzianum* @ 1kg + *Paecilomyces lilacinus* @ 1kg /ton of soil.
- Apply 2 kg of Farm yard manure enriched with bio-pesticides –*T. harzianum* and *P. lilacinus* at the time of planting

Ornamental Crops

Whitefly on Gerbera (polyhouses)

- Spray Diafenthiuran 50WP @ 1 g/l followed by Dnetofuran 20SG @1g/litre
- Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

Rose Thrips

- Spray Pongamia oil 0.5%.
- Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- Drench the soil with Imidacloprid 200 SL @ 5ml/l for killing pupae in the soil.

Midge on crossandra

- Incidence of midge is increasing on crossandra. Spray Imidacloprid 17.8SL @ 0.5 ml/l.

Disease Scenario

Disease forecast and management practices based on weather parameters during the second fortnight of May, 2022

Fruit crops

Grape

- Grapevines should be continued to be protected against the infection of downy mildew by the application of 0.4g Dimethomorph + 2.00 g Mancozeb /l or Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l.
- Lower surface of the leaves on the vines to be sprayed properly with Propineb (0.2%)/ Chlorothalonil (0.2%) are effective along with sticker @ 0.5 ml/ l.
- Anthracnose: spraying with Propineb (0.2%)/ Chlorothalonil (0.2%) effective along with sticker @ 0.5 ml/ l.
- Rust (on var Bangalore blue): treatment with Chlorothanonil (0.2%).

Papaya

- Foliar, fruit as well as internal infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may advance Application of Chlorothalonil (0.2%), Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

Banana

- Moderate increase in the intensity of Sigatoka leaf spot (*Mycospheralla* sp) was noticed compared with the last fortnight whereas anthracnose of fruits (*C. musae*) and crown rot caused by *Fusarium moniliformae* were recorded.
- For controlling Sigatoka application of Dinocap (0.1%) or Chlorothalonil (0.2%) is recommended whereas crown rot and anthracnose could be effectively managed by the pre-harvest sprays with Propiconazole at 0.1%

Pomegranate

- Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) may increase further. Application of Chlorothalonil (0.2%) /Propineb (0.2%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.
- Nodal Blight needs further attention. Application of COC (0.2%) along with the sticker @ 0.5ml/l should be applied at the interval of 15-20 days.

Vegetable Crops

Tomato

- It is the time for the protective sprays of contact fungicides like Mancozeb, Copper oxychloride or Chlorothalanil on tomato to avoid early leaf blight.
- In case of serious spread due to rain splash follow up spray with Propineb (0.2%) or Meitiram (0.2%) or Pyraclostrobin + Metiram (0.2%) at fortnightly interval.

Onion

- To avoid the purple blotch and *Stemphyllum* leaf blight application of fungicides such as Chlorothalonil (0.2 %) or Propineb (0.2 %) or Mancozeb (0.2%) at fortnightly intervals from onset of the disease will be useful

Cucurbits

- To avoid the spread of downy mildew spraying Chlorothalonil (0.2%)or Mancozeb (0.2%) or Metalaxyl -Mancozeb(0.2%) or Fosetyl-AI (0.2%) or Cymoxanil-mancozeb(0.2%) 10-day intervals from onset of the disease.

Viral diseases in tomato and chilli

- To avoid the spread of viral diseases spraying of neem oil or neem soap at early stages of crop growth after transplanting till flowering stage will help.

METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th July 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
July (1-15) 2022	27.3	20.2	85.5	67.4	2.95	7.10	26.1
	(29.2)	(20.5)	(83.1)	(63.2)	(4.2)	(6.4)	(61.2)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th July 2022

During the first fortnight of the month i.e., from 1st to 15th July 2022, the mean maximum minimum temperature increased by 2.1^0C and 0.2^0C respectively as compared to previous fortnight. The mean maximum and minimum temperature decreased by 0.2^0C and the mean minimum temperature remains the same as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and afternoon increased by 5.9% and 11.6% respectively as compared to the previous fortnight. There was 26.1mm rainfall during the fortnight.

Crop weather situation

Mean rainfall received during the fortnight of July was lower compared to the average rainfall received during last 5 years. Liberal application of FYM may be done wherever sufficient moisture is there and basal doses of inorganic fertilizers may be applied for planting *Kharif* vegetables.

Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Mango stem borer

- This period coincides with the emergence of adult beetles of trunk borer, *Batocera rufomaculata*.
- Plug active holes (can be diagnosed with the presence of fresh chewed wood material and excreta) with cotton dipped in Chloropyrifos @ 5ml/L and close with mud.
- In case of severe infestation IIHR developed Sealer cum healer can be used.

Vegetable Crops

Fruit fly on cucurbits

- For the management of fruit fly (*Bactrocera cucurbitae*) on cucurbits, following integrated approach may be followed.
- Installing cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + jaggery @ 10g/L) at 10 days interval from the date of flowering.

Chilli Thrips,

- Spray Fipronil 5 SC (1.5 ml/l) or Imidacloprid 200 SL (0.3 ml/l) alternatively at fortnightly interval.

Root-knot nematode in Tomato

- Raise healthy transplants on soil applied with FYM or Vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.
- In standing crop, apply neem cake enriched with above Biopesticides @ 50g/ m^2. This can also be mixed with water and applied as soil drench @ 2l/m^2. The same can be thoroughly filtered and sent along with drip or sprayed.

Cut worms

- Incidence of cutworms may be seen up to 15-20 days after transplantation of vegetable crops
- Young seedlings will be cut at ground level by cut worm larvae during night time

- Drench the soil around the root zone of the crop with Chlorpyrifos 20 EC @ 5ml/l for killing larvae in the soil

Legumes pod borer

- Spray indoxacarb14.5 SC @ 0.75ml/litre at 10 days interval from flowering stage

Root-knot nematode in Okra

- Seed treatment with *Trichoderma harzianum* or *Pseudomonas fluorescens* @ 15-20g/kg seed.
- Soil application of FYM or vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.
- In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m^2. This can also be mixed with water and applied as soil drench @ 2l/$m^{2.}$. The same can be thoroughly filtered and sent along with drip or sprayed.

Flower Crops

Whitefly on Gerbera (polyhouses)

- Spray Diafenthiuran 50 WP @ 1 g/l followed by Dinetofuran 20 SG@ 1g/litre
- Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

Rose Thrips

- Spray Imidacloprid 17.8 ml/l or Dimethoate 30 EC @ 2ml/l with pongamia oil 0.5%.
- Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

Midge on crossandra

- Incidence of midge is increasing on crossandra. For its management spray Imidacloprid 17.8 SL@ 0.5 ml/l.

Disease Scenario

Disease forecast and management practices based on weather parameters during the first fortnight of July 2022.

Fruit crops

Grape

- Grapevines needs to be protected against the infection of (i) downy mildew: by the application of 0.5g Dimethomorph + 2.00 g Mancozeb /l or Metalaxyl + Mancozeb (0.2%) along with sticker @ 0.5 ml/ l.
- Lower surface of the leaves on the vines to be sprayed properly (ii) anthracnose: spraying with Propineb (0.2%)/ Chlorothalonil (0.2%) are effective along with sticker @ 0.5 ml/ l. (iii) Rust (on var Bangalore Blue): treatment with Chlorothanonil (0.2%) or Azoxystrobin at 0.05%.

Papaya

- Foliar and fruit infection of Anthracnose and black spot may advance. Application of Thiophanate methyl M (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

Pomegranate

- Intensity of anthracnose on fruit and leaf may increase. Application of Chlorothalonil (0.2%) as protective spray and Hexaconazole (0.1%) as curative spray along with the sticker @ 0.5ml/l is effective for the disease control.

Vegetable Crops

Tomato

- Initiation of late blight is expected. Remove and destroy infected low lying leaves to prevent further spread.
- Provide proper staking for air circulation between plants.
- Spray Mancozeb75%WP /Zineb75%WP (2g/l) /Propineb70%WP (3g/L) as protective sprays followed by Famoxadone16.6%+ Cymoxanil22.1%SC (0.1%) or Metiram 55% + Pyraclostrobin 5% WG (0.3%) as curative sprays at 10 days' interval.

Onion

- Onion twister (Anthracnose) flare up due to rain splashes.
- It is advised to give prophylactic spray with Zineb (0.2%) or Mancozeb (0.2%) at fortnightly intervals from onset of the disease.
- If severity is more spray with Difenoconazole (0.1%) is advised.

Ornamentals

Rose

- To avoid the black spot in rose prophylactic spray with contact fungicides will help (Chlorothalonil or Mancozeb at 0.2%) along with sticker. In severe cases Trifloxystrobin+Tebuconazole at 0.1% at 15 days interval will reduce the disease incidence.

Marigold

- To avoid the spread of *Alternaria* blight prophylactic spray with Copper oxy chloride, Chlorothalonil or Mancozeb at 0.2% at 15 days interval will help.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 31st July, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
July (16-31) 2022	29.5	20.0	82.5	59.6	3.95	3.24	96.5
	(28.6)	(20.3)	(84.8)	(66.1)	(4.0)	(6.1)	(61.0)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 31st July, 2022

During the second fortnight of the month i.e., from 16th to 31st July, 2022, the mean maximum temperature increased by 2.2^0C and the mean minimum temperature decreased by 0.2^0C as compared to previous fortnight. The mean maximum and minimum temperatures decreased by 0.6^0C and 0.2^0C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and the afternoon decreased by 3.0% and 7.8% respectively as compared to the previous fortnight. There was 96.5 mm rainfall during the fortnight.

Crop weather situation

During last fortnight rainfall was about 1.5 times higher than the average rainfall of previous 5 years. Wind speed and evaporation rate were lower. Required fertilizers and manures may be applied as soil conditions are conducive for nutrient application. Intercultural operations may be taken up as per the feasibility of the soil conditions. Planting of late kharif vegetables may be taken up. During the period under report, weather conditions were optimum for planting most of the crops including jamun and sapota with proper drainage arrangements.

,Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Leaf Webber on mango

- Remove and destroy the webbed portions wherever they are accessible
- For the management of this pest, prune the affected shoots and spray lambda cyhalothrin 5EC @ 1ml/l

Mango shoot borer

- Clip and destroy affected shoots
- Spray lambda cyhalothrin 5EC @ 1ml/l or Quinalphos 25 EC @ 2ml/l at the time of emergence of new flush. This will also take care of leaf eating weevil, *Rhynchaenus mangiferae*

Vegetable Crops

Fruit fly on cucurbits

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (lambda cyhalothrin 5EC 1 ml + jaggery @ 10g/L) at 10 days interval from the date of flowering.
- Bait Splash of 40/ acre (150g jaggery + 500mlwater + 5ml lambda cyhalothrin 5EC)

Tomato moth

- Install Tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre and Spray indoxacarb14.5 SC @ 0.75 ml/litre or spinosad45SC @ 0.3ml/l

Mites on tomato

- For the management of mites spray wettable sulphur @ 3 g/l or propargite 57 EC @ 1.25 ml/l or fenzaquine 10EC @ 1.5ml/litre

Chilli Thrips

- Spray fipronil 5 SC (1.5 ml/l) or imidacloprid 17.8 SL (0.3 ml/l) alternately at fortnightly interval.

Root-knot nematode in tomato

- Raise healthy transplants on soil applied with FYM or vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.
- In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m^2. This can also be mixed with water and applied as soil drench @ 2l/$m^{2.}$. The same can be thoroughly filtered and sent along with drip or sprayed

Ornamental Crops

Rose Thrips,

- Spray imidacloprid 17.8SL @0.3ml/l with pongamia oil 0.5%.
- Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

Mites on rose

- For the management of mites spray milbemectin1EC @ 1 ml/l

Midge on crossandra

- Under the prevailing conditions, incidence of midge increases on crossandra. For its management spray imidacloprid 17.8SL @ 0.3 ml/l.

Whitefly on Gerbera (polyhouses)

- Spray diafenthiuran 50WP @ 1 g/l followed by dinetofuran 20SG 1g/litre
- Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

Disease Scenario

Disease forecast and management practices based on weather parameters during the second fortnight of May, 2022

Fruit crops

Papaya

- Foot rot caused by *Pythium* spp. and *Phytophthora* spp. occurs due to continuous rains. Avoid water logging by providing proper drainage to remove excess water.

Application of farmyard manure or neem cake enriched with *Trichoderma harzianum* helps in preventive management. If disease is noticed in few plants, drench with copper oxychloride 50%WP (2.5g/l), if severity is more drench with dimethomorph 50% WP (0.5g/l).

Vegetable Crops

Tomato

- Remove lower most old and diseased leaves in the morning at first harvest stage to provide cross ventilation and prevent early and late blight spread. To manage late blight, give a curative foliar spray of famoxadone 16.6%+ cymoxanil 22.1% SC (1g/l) or metiram 55% + pyraclostrobin 5% WG (3g/l).
- To enhance tolerance to virus diseases, give foliar spray of Arka Vegetable Special @ 5g/L (a micronutrient formulation) followed by a foliar spray of Sagarika (Organic bio-stimulant /Sea weed extract) @ 2ml per litre.

Chillies

- High humidity, moderate temperature and rain splash predispose chilli fruits to anthracnose (*Colletotrichum truncatum* and *C. gloeosporioides*). To manage this disease, give foliar application of mancozeb 75% WP (2 g/l) or zineb 75% WP (2g/l) as preventive sprays followed by difenoconazole 25% EC (0.5ml/l) or azoxystrobin 18.2% w/w + difenoconazole 11.4% w/w SC (1ml/l) or as curative sprays at 15 days interval.

Chrysanthemum

- Leaf and flower blight caused by *Alternaria* spp. gets aggravated due to prevailing rains. To manage this disease spray difenoconazole 25% EC (0.5ml/l) or tebuconazole 20 EC (25.9% W/W) (0.5ml/l).

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th August, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
July (1-15) 2022	27.8	19.9	83.9	66.4	4.38	6.37	96.1
	(28.3)	(20.6)	(83.6)	(67.0)	(3.7)	(6.0)	(53.0)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th August, 2022

During the first fortnight of the month i.e., from 1st to 15th August, 2022, the mean maximum and minimum temperatures decreased by 1.7^0C and 0.1^0C respectively as compared to previous fortnight. The mean maximum temperature decreased by 0.3^0C and mean minimum temperature increased by 0.3^0C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and the afternoon increased by 1.4% and 6.8% respectively as compared to the previous fortnight. There was 96.1 mm rainfall during the fortnight.

Crop weather situation

For the banana plantations which were planted during June- July the first installment application of N, P_2O_5 and K_2O @ 50:30:60 g per plant may be applied. For guava also N, P_2O_5 and K_2O @ 60: 30: 40 g/tree may be applied if fertilizer application has not been done. For papaya land preparation and basal application of FYM @ 25 kg/tree fertilizer application may be done for September-October planting.

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Incidence of Insect pests

Under the prevailing weather situation, the following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are as below.

Fruit Crops

Mango

Leaf Webber on mango

- Remove and destroy the webbed portions wherever they are accessible
- For the management of this pest, prune the affected shoots and spray lambda cyhalothrin 5EC @ 1ml/l

Mango shoot borer

- Clip and destroy affected shoots
- Spray lambda cyhalothrin 5EC @ 1ml/l or Quinalphos 25 EC @ 2ml/l at the time of emergence of new flush. This will also take care of leaf eating weevil, *Rhynchaenus mangiferae*

Vegetable Crops

Fruit fly on cucurbits

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (lambda cyhalothrin 5EC 1 ml + jaggery @ 10g/L) at 10 days interval from the date of flowering.
- Bait Splash of 40/ acre (150g jaggery + 500mlwater + 5ml cypermethrin)

Tomato moth

- Install tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre and Spray indoxacarb14.5 SC @ 0.75 ml/litre or spinosad45SC @ 0.3ml/l

Mites on tomato

- For the management of mites spray wettable sulphur @ 3 g/l or propargite 57 EC @ 1.25 ml/l or fenzaquine 10EC @ 1.5ml/litre

Chilli Thrips

- Spray fipronil 5 SC (1.5 ml/l) or imidacloprid 17.8 SL (0.3 ml/l) alternately at fortnightly interval.

Root-knot nematode in tomato

- Raise healthy transplants on soil applied with FYM or vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.
- In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m^2. This can also be mixed with water and applied as soil drench @ 2l/$m^{2.}$. The same can be thoroughly filtered and sent along with drip or sprayed

Ornamental Crops

Rose Thrips,

- Spray imidacloprid 17.8SL @0.3ml/l with pongamia oil 0.5%.
- Apply fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- Drench the soil with chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

Mites on rose

- For the management of mites spray milbemectin1EC @ 1 ml/l

Midge on crossandra

- Under the prevailing conditions, incidence of midge increases on crossandra. For its management spray imidacloprid 17.8SL @ 0.3 ml/l.

Whitefly on Gerbera (polyhouses)

- Spray diafenthiuran 50WP @ 1 g/l followed by dinetofuran 20SG 1g/litre
- Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

Disease Scenario

Disease forecast and management practices based on weather parameters during the second fortnight of May, 2022

Fruit crops

Mango

- High relative humidity and prolonged rains favours mango leaf blight disease, caused by fungi, *Macrophomina mangiferae*, *Pestalotiopsis mangiferae*, *Phoma glomerata* and other *Phoma* sp. These could be managed by protective foliar spray

of chlorothalonil 75% WP (0.2%)/ Mancozeb 75% WP (0.2%) along with the sticker @ 0.5ml/l.

Banana

- Sigatoka leaf spot (*Mycosphaerella* spp.) severity increase under prevailing weather condition. To manage this disease, remove and destroy old leaves which are completely yellow and blighted with leaf spots. It should be followed with foliar spray of fungicide, propiconazole 25% EC (0.1%) or carbendazim 12% + mancozeb 63% WP (0.2%) in rotation at 15 days intervals. Add adjuvant (sticker) to spray solution at 0.5 ml per litre.

Vegetable Crops

Ridge gourd

- Cool weather and high humidity with intermittent rains aggravate downy mildew disease (*Pseudoperonospora cubensis*) in ridge gourd. To manage this disease avoid build up of high humidity in crop canopy, by proper drainage to remove excess soil moisture and also proper staking to provide cross ventilation between plants. It should be followed with curative foliar sprays with dimethomorph 50WP (1g/l) + mancozeb 75% WP (2g/l) or cymoxanil 8% + mancozeb 64% WP (0.2%). During spray add adjuvant (sticker) to spray solution at 0.5 ml per litre.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16st to 31st August, 2022
Latitude : 13^{0}7^1 N **Longitude : 72^{0}29^{1}E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
August (16-31st) 2022	29.9	19.5	84.3	59.0	4.05	2.53	128.1
	(28.1)	(20.1)	(86.5)	(67.5)	(3.6)	(3.9)	(85.3)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16st to 31st August, 2022

During the Second fortnight of the month i.e., from 16th to 31st August, 2022, the mean maximum temperature increased by 2.1^{0}C and mean minimum temperatures decreased by 0.4^{0}C as compared to previous fortnight. The mean maximum and minimum temperature decreased by 0.2^{0}C and 0.5^{0}C respectively as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning increased by 0.4% and in the afternoon decreased by 7.4 % as compared to the previous fortnight. There was 128.1 mm rainfall during the fortnight.

Crop weather situation

Second half of August has received good amount of rain and making water requirement became minimum for many of standing crop. Inter cultivation and application of split dose of fertilizers can be taken up. In case of guava, due to Boron and Zn deficiency the fruits may be small and hard. Application of $ZnSO_4$ @ 50 g/tree or 1% spray and 0.1% Boric acid might improve the size of the fruit. Chilli crop got affected by Phytophthora root rot &thrips. Due to excess moisture, there is lot of collar rot in brinjal standing crop. Watermelon and Muskmelon crop severely infected by anthracnose, Fusarium wilt, gummy stem blight, downey mildew and powdery mildew due to very high rainfall and high humidity. Excess water should be drained out from field. Fusarium wilt is common in this season, avoid water stagnation in the field. In Onion crop due to continuous heavy rain and high RH incidence of anthracnose, twister complex disease is severe both at nursery and transplanted crop. Due to heavy rain, the areas which are hotspot for Gourd's cultivation may severely affected by powdery mildew.

Downy mildew is the major problem during rainy season in cucumber, it needs, regular spray of fungicide. In Cluster bean proper drainage and staking of plant is required to avoid lodging due to heavy rain. Prophylactic drenching with Kavach 2gm/ltr to avoid *phythopthora* root and collar rot in Bell pepper may be taken up.

Incidence of Insect pests

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

Hoppers and thrips on mango

New flush of certain varieties like Alphonso and Banganapalli attracts hoppers and thrips. Spraying with acephate 75SP @ 1.5 g /L along with sticker will check the infestation which otherwise may serve as source for flowering season.

Fruit fly on cucurbits

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 15 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (deltamethrin 2.8 EC@ 1 ml + jaggery @ 10g/L) at 10 days interval from the date of flowering.

- Bait Splash of 40/ acre (150g jaggery + 500mlwater + 5ml deltamethrin 2.8 EC)

Mites on tomato

- For the management of mites spray fenzaquin 10 EC @ 1.5ml/litre Or spiromesifen 22.9EC @ 0.5 ml/l

Black thrips on chilli (tentative management only)

- Black thrips incidence is increasing on chilli and capsicum; it is advised to farmers to raise seedlings under Nylon mesh thrips proof conditions, use thrips free seedlings

- Barrier crop: sow maize all along the border 30 days before chilli transplantation

- Root dipping of the seedlings in imidacloprid 17.8 SL solution @ 0.5 ml per litre of water for one hour during transplanting

- After planting: regular alternate weekly spraying of imidacloprid 17.8 SL 0.5ml/litre+ neem oil 2.5ml/litre, fipronil80WG@40g/acre, Fipronil 40%+ imidaclorpid40%@40g/acre, Cyantraniliprole10OD@240ml/acre, acetamiprid20SP@40g/acre, spirotetramat150 OD@160ml/acre, pongamia oil 2.5ml/litre

- Every 15days interval (depending upon the outbreak) chlropyrifos (2.5ml/l) soil drenching is required to kill pupa that are in soil.

- Note: none of these chemicals approved by CIBRC, its only adhoc recommendation

Ash weevil on brinjal

- Collect and destroy adults
- Apply oiled neem cake with 8-10% oil to ridges @ 250kg/ha at planting and repeat at 30 Days After planting
- In endemic areas, apply chloropyrifos 1.5D @25-30kg/ha on 15 days after planting

Rose thrips

- Spray dimethoate 30 EC @ 2ml/l with pongamia oil 0.5%.
- Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

Mites on rose

- For the management of mite's spray milbemectin1EC @ 1 ml/l

Midge on crossandra

- Under the prevailing conditions, incidence of midge increases on crossandra. For its management spray imidacloprid 17.8 SL @ 0.5 ml/l.

Whitefly on Gerbera (polyhouse)

- Spray diafenthiuran 50 WP @ 1 g/l followed by dinetofuran 20 SG@ 1g/litre
- Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

Bud borer

- Severe incidence of Jasmine bud borer is noticed during this period. Spray profenofos 50EC @1 ml/l for its management. If the incidence is severe spray indoxacarb 14.5 SC @ 0.75 ml/l.

Disease Scenario

Disease scenario in relation to meteorological data based on the weather data during 2nd fortnight of August 2022.

Fruit crops:

Papaya

- Black leaf and fruit spots (*Asperisporium cariceae*) severity is expected to increase with prevailing weather. Foliar application of Thiophanate methyl M (0.1%) along with sticker @ 0.5 ml/L is recommended. Lower surface of the leaves to be sprayed properly.

Pomegranate

- To reduce spread of bacterial blight, spray Bordeaux mixture 1% along with bronopol at 0.5% at 15 days interval.

Vegetable Crops:

Tomato

- Because of intermittent rains spread of Phytophthora blight (*Phytophthora infestans*) is expected in tomato. To manage this disease, remove low lying infected leaves and spray Mancozeb75%WP/Zineb75%WP(2g/l)/Propineb 70%WP (3g/L) as protective sprays followed by Famoxadone16.6%+ Cymoxanil 22.1%SC (1g/l) or Metiram 55% + Pyraclostrobin 5% WG (3g/l) as curative spray.

Chilli

- Due to rain splash anthracnose spread is expected in green chillies. To manage this disease, give foliar spray of copper Oxychloride 50% WP (2.5g/l) or Mancozeb75%WP (2 g/l) or Propineb70%WP (5g/l) or Zineb75%WP (2g/l) as preventive sprays followed by Difenoconazole25% EC (0.5ml/l) as curative sprays.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th September, 2022
Latitude : $13^{0}7^{1}$ N **Longitude : $72^{0}29^{1}$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
September (1-15) 2022	29.0	19.7	82.1	61.3	4.05	3.58	223.0
	29.0	20.2	85.1	65.7	3.9	3.8	104.9

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th September, 2022

During the First fortnight of the month i.e., 1st to 15th September, 2022, the mean maximum temperature decreased by 0.9 °C and the mean minimum temperature increased by 0.2 °C as compared to previous fortnight. The mean maximum and minimum temperatures increased by 0.9 °C and 0.1 °C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning decreased by 2.2% and increased by 2.3% in the evening as compared to the previous fortnight. There was 223.0 mm rainfall during the fortnight.

Crop weather situation

During this fortnight, there was double the amount of rainfall compared to average rainfall received during last 5 years. Top dressing of nitrogen and potassium to banana may be done to kharif planted banana plantations. Intercultural operations may be completed if soil moisture status is suitable. Excess water due to heavy rainfall in the basins of the fruit crops especially papaya may be drained out. Profuse vegetative flushing observed in Alphonso mango trees, especially under high density planting.

Incidence of insect pests

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

Mango shoot borer

- Clip and destroy affected shoots
- Spray acephate 50 WP@ 1.5 g/l or Quinalphos 25 EC @ 2ml/l at the time of emergence of new flush. This will also take care of leaf eating weevil, *Rhynchaenus mangiferae*

Webber and ash weevil on mango

- Incidence of webber and ash weevil become serious on new leaves. Remove webbed leaves wherever possible and burn them. Spray quinalphos 25 EC @ 2 ml/l or lamda cyhalothrin 5 EC @ 1ml /l for their management.

Pomegranate

Fruit sucking moth: Wherever matured fruits are there, fruit sucking moth damage is expected. Netting the orchards is recommended

Thrips: On new flush, thrips incidence is expected. Spray fipronil 5 SC @ 1.5ml/L

Fruit fly on cucurbits

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 15 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (lamda cyhalothrin 5 EC@ 1 ml + jaggery @ 10g/L) at 10 days interval from the date of flowering.

- Bait Splash of 40/ acre (150g jaggery + 500mlwater + 5ml lamda cyhalothrin 5 EC)

Tobacco caterpillar on tomato

- For the management of this pest, spray indoxacarb @ 0.75 ml/L or ranxypyr 18.5 SC @ 0.3ml/L.

Leaf hopper on okra bhendi

- Incidence of jassids is observed on okra. Spray imidacloprid 17.8 SL @ 0.3 ml/l, if the crop is at pre-flowering stage. Otherwise, spray neem or pongamia soaps @ 1 %, thoroughly covering lower surface of leaves.

Thrips on rose

- Incidence of rose thrips was observed more under polyhouse conditions. Spray acepthate 75 SP @ 1 g/l or imidacloprid 17.8 SL @ 0.5 ml/l for its management.

Whitefly on gerbera

- For the management of whitefly on gerbera diafenthiuron 50 WP @ 1g/liter followed by dinetofuran 20SG @ 0.3 g/l. Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

Disease scenario

Disease scenario in relation to meteorological data based on the weather data during 1st fortnight of September 2022

Fruit crops

Papaya

- Foot rot caused by *Pythium* spp. and *Phytophthora* spp. occurs due to continuous rains. Avoid water logging by providing proper drainage to remove excess water. Application of farmyard manure or neem cake enriched with *Trichoderma harzianum* helps in preventive management. If disease is noticed in few plants, drench with copper oxychloride 50%WP (2.5g/l), if severity is more drench with dimethomorph 50% WP (0.5g/l).

Vegetable Crops

Chillies

1. Powdery mildew (*Leveillula taurica*)

- Spraying of Tebuconazole25% WG (1.5g/L), or Tebuconazole25.9%m/m EC @1.5ml/L or Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC @1ml/L, Azoxystrobin 8.3% + Mancozeb 66.7% WG (3g/L) or Tebuconazole 50% + Trifloxystrobin 25% WG (0.5g/l) at 10 -12-day intervals (2-3 sprays).

2.Anthracnose (*Colletotrichum truncatum* and *C. gloeosporioides*):

- Prevailing high humidity and moderate temperature favour anthracnose development. To manage this disease, give foliar application of Copper Oxychloride 50% WP (2.5g/l) or Mancozeb75%WP (2 g/l) or Propineb70%WP (5g/l) or Zineb75%WP (2g/l) as preventive sprays followed by Difenoconazole25% EC (0.5ml/l) or Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC (1ml/l) or Azoxystrobin 8.3% + Mancozeb 66.7% WG@ (3g/l) or Azoxystrobin 11% + Tebuconazole-18.3% SC W/W or Metiram 55% + Pyraclostrobin 5% WG (3g/l) as curative sprays at 10 days interval.

Cucumber

- Because of intermittent rains increase in severity of downy mildew (*Pseudoperanospora cubensis*) blight is expected. Humid cool conditions and frequent rains favour the disease. Spray Zineb75%WP @2g/L or Ametoctradin + Dimethomorph 20.27% w/w SC @2g/L.

Flower Crops

Rose

- Incidence of rose powdery mildew (*Podosphaera pannosa*) is expected in current weather condition. In case of severe infection hexaconazole 0.1% or azoxystrobin 0.1% foliar spray will reduce the disease spread.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 30th September, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
September (16-30) 2022	29.5	18.5	75.8	54.4	4.5	3.0	2.8
	(28.5)	(20.0)	(84.6)	(63.6)	(3.3)	(3.9)	(74.7)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 30th September, 2022

During the Second fortnight of the month i.e., 16th to 30th September, 2022, the mean maximum temperature increased by 0.5 °C and the mean minimum temperature decreased by 1.2 °C as compared to previous fortnight. The mean maximum and minimum temperatures decreased by 0.5 °C and 0.2 °C respectively as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and the afternoon decreased by 6.3% and 6.9% respectively as compared to the previous fortnight. There was 2.8 mm rainfall during the fortnight.

Crop weather situation

This fortnight has been very dry as meagre rainfall was received. Mulching orchard soils with available organic material can be considered to conserve residual profile soil moisture. Farmers who have got standing vegetable crops may take up one spray of vegetable special along with sufficient supplemental irrigation. Land preparation for Rabi season crops can be initiated.

Incidence of insect pests

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

Mango shoot borer

- Clip and destroy affected shoots
- Spray acephate 50 WP@ 1.5 g/l or Quinalphos 25 EC @ 2ml/l at the time of emergence of new flush. This will also take care of leaf eating weevil, *Rhynchaenus mangiferae*

Webber and ash weevil on mango

- Incidence of webber and ash weevil become serious on new leaves. Remove webbed leaves wherever possible and burn them. Spray quinalphos 25 EC @ 2 ml/l or lamda cyhalothrin 5 EC @ 1ml /l for their management.

Pomegranate

Fruit sucking moth: Wherever matured fruits are there, fruit sucking moth damage is expected. Netting the orchards is recommended

Grapes

Thrips, *Scirtothrips dorsalis* is expected to occur on leaves of newly pruned Bangalore Blue. Spray fipronil 5 SC @ 1.5ml/L

Fruit fly on cucurbits

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 15 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (lamda cyhalothrin 5 EC@ 1 ml + jaggery @ 10g/L) at 10 days interval from the date of flowering.

Tomato moth

- Install tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre
- Spray indoxacarb 14.5SC @ 0.75 ml/litre or spinosad45 SC @ 0.3ml/l

Tobacco caterpillar on tomato

- For the management of this pest, spray indoxacarb @ 0.75 ml/L

Leaf hopper on okra bhendi

- Incidence of jassids is observed on okra. Spray imidacloprid 17.8 SL @ 0.3 ml/l, if the crop is at pre-flowering stage. Otherwise, spray neem or pongamia soaps @ 1 %, thoroughly covering lower surface of leaves.

Thrips on rose

- Incidence of rose thrips was observed more under polyhouse conditions. Spray acepthate 75 SP @ 1 g/l or imidacloprid 17.8 SL @ 0.5 ml/l for its management.

Whitefly on gerbera

- For the management of whitefly on gerbera, diafenthiuron 50 WP @ 1g/liter followed by dinetofuran 20SG @ 0.3 g/l. Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

Disease scenario

Disease scenario in relation to meteorological data based on the weather data during 2nd fortnight of September 2022

Fruit crops

Mango

- Application of Bordeaux paste to tree trunk up to 1m from soil before start of North East monsoon-October. Regular pruning and destruction of affected twigs or branches and application of copper oxy chloride (0.3 %) soon after the pruning. First prophylactic spray to control powdery on foliage with Sulphur 80 % WP (2g/l) or Hexaconazole 5% EC (1ml/l).

Vegetable Crops

Chillies

- Prevailing weather conditions favour development of powdery mildew (*Leveillula taurica*) disease in chilli. To manage this disease, give foliar spray of Spraying of Tebuconazole25% WG (1.5g/L), or Tebuconazole25.9%m/m EC @1.5ml/L or Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC @1ml/L, Azoxystrobin 8.3%

+ Mancozeb 66.7% WG (3g/L) or Tebuconazole 50% + Trifloxystrobin 25% WG (0.5g/l) at 10 -12-day intervals (2-3 sprays).

Capscicum

- Due to intense rainfall and water logging Phytopththora blight (*Phytophthora capsici*) is likely to aggravate in capsicum. To manage this disease provides proper water drainage. Follow prophylactic foliar application of Chlorothalonil (2g/L) followed by curative application of Dimethomorph (1g/L).

Flower Crops

Chrysanthemum

- Rust (*Puccinia horiana*) is expected to appear in Chrysanthemum. To manage this disease, give foliar sprays of Chlorothalonil (2g/L) or Propiconazole at (1ml/L) 3 to 4 times at 15 days interval

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th October, 2022
Latitude : $13^{0}7^{1}$ N **Longitude : $72^{0}29^{1}$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
October (1-15) 2022	28.5	19.1	86.1	62.8	3.83	1.79	163.3
	(29.2)	(19.9)	(87.3)	(64.4)	(13.8)	(2.6)	144.8)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th October, 2022

During the first fortnight of the month i.e., 1st to 15th October, 2022, the mean maximum temperature decreased by 1.0 °C and the mean minimum temperature increased by 0.6 °C as compared to previous fortnight. The mean maximum temperatures increased by 0.7 °C and the mean minimum temperatures decreased by 0.1 °C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and the afternoon increased by 10.3% and 8.4% respectively as compared to the previous fortnight. There was 163.3 mm of rainfall during the fortnight.

Crop weather situation

The period has remained wet and excess water has to be drained out from the fields with standing vegetable crops. If field preparation for rabi crops has not been done, it has to be taken up as early as possible considering the of soil moisture conditions. Mango farmers are advised to give one spray of Arka Mango special during this period.

Incidence of insect pests

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

Mango shoot borer

- Clip and destroy affected shoots
- Spray profenophos 50EC @ 2ml/l, indoxacarb 14.5 SC@ 0.75ml/l or Quinalphos 25 EC @ 2ml/l at the time of emergence of new flush. This will also take care of leaf eating weevil, *Rhynchaenus mangiferae.*

Leaf webber and ash weevil on mango

- Incidence of leaf webber and ash weevil become serious on new leaves. Remove webbed leaves wherever possible and burn them. Spray quinalphos 25 EC @ 2 ml/l or lamda cyhalothrin 5 EC @ 1ml /l for their management.

Pomegranate

Fruit sucking moth: Fruit sucking moth damage is expected on matured fruits. Netting the orchards is recommended. Spray cyantraniliprole 10.26% OD@1.25g/l.

Grapes

Thrips, *Scirtothrips dorsalis* is expected to occur on leaves of newly pruned Bangalore Blue,variety. Spray fipronil 5 SC @ 1.5ml/L or *Metarhizium* formulations.

Fruit fly on cucurbits

- For the management of fruit fly on cucurbits the following integrated approach may be followed. Deployment of cue lure traps @ 15 traps/acre + sanitation (complete destruction of infested fruits at each harvest) + bait spray (lamda cyhalothrin 5 EC@ 1 ml + jaggery @ 10g/L) at 10 days interval from the date of flowering.

Tobacco caterpillar on tomato

- For the management of this pest, spray indoxacarb @ 0.75 ml/L or thiodicarb 75WP @ 1 g/L.

Leaf hopper on bhendi

- Incidence of jassids is observed on bhendi. Spray imidacloprid 17.8 SL @ 0.3 ml/l, if the crop is at pre-flowering stage. Otherwise, spray neem or pongamia soaps @ 1 %, thoroughly covering lower surface of leaves.

Thrips on rose

- Incidence of rose thrips was observed more under polyhouse conditions. Spray acepthate 75 SP @ 1 g/l or imidacloprid 17.8 SL @ 0.5 ml/l for its management.

Disease scenario

Disease scenario in relation to the weather data during first fortnight of October 2022

Fruit crops

Mango

- Application of Bordeaux paste to tree trunk up to 1m from soil before the start of North-East monsoon. Pruning and destruction of disease affected twigs or branches and application of copper oxy chloride (0.3 %) or Bordeaux paste to pruned parts.

Vegetable Crops

Chillies

- Anthracnose (*Colletotrichum truncatum* and *C. gloeosporioides*) severity increases under prevailing weather conditions. Foliar application of copper oxychloride 50% WP (2.5g/l) or mancozeb75%WP (2 g/l) or zineb75%WP (2g/l) as preventive sprays followed by difenoconazole25% EC (0.5ml/l) or metiram 55% + pyraclostrobin 5% WG (3g/l) as curative sprays at 15 days interval has to be followed to manage this disease.

Cucurbits

- Prevailing humid cool conditions and frequent rains favours downy mildew (*Pseudoperanospora cubensis*) development in cucurbits. To manage this disease, give a foliar spray of zineb75%WP @2g/L followed by ametoctradin + dimethomorph 20.27% w/w SC @2g/L at 10 days interval

Flower Crops

Chrysanthemum

- Leaf and flower blight (*Colletotrichum truncatum* and *Alternaria chrysanthemii*) are expected to appear in chrysanthemum. To manage this disease, give foliar sprays of chlorothalonil (1g/L) followed by difenoconazole at (0.5 ml/L) at 15 days interval.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 31st October, 2022
Latitude : $13^{0}7^{1}$ N **Longitude : $72^{0}29^{1}$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
October (16-31) 2022	28.8	16.3	75.9	49.6	3.86	1.74	139.2
	(28.5)	(18.1)	(80.4)	(60.6)	(3.4)	(2.5)	(62.7)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 31st October, 2022

During the second fortnight of the month i.e., 16th to 31st October, 2022, the mean maximum temperature increased by 0.3 °C and the mean minimum temperature decreased by 2.8 °C as compared to previous fortnight. The mean maximum temperatures decreased by 0.7 °C and 1.8 °C respectively as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and the afternoon decreased by 10.2% and 13.2% respectively as compared to the previous fortnight. There was 139.2 mm of rainfall during the fortnight.

Crop weather situation

Excess water must be drained out from the field with standing crops as this fortnight has received very high rainfall. Since high rainfall might have caused higher nitrogen loss by leaching, 20% increase in N application rate for vegetables in top dressing is recommended. Mango needs depletion of profile moisture for flowering. Therefore, provision for draining out excess water from mango field has to be made on priority.

Incidence of insect pests

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

Mango leaf eating caterpillars and weevils

- Spray quinalphos 25 EC@ 2 ml/l or lambda cyhalothrin 5EC @ 1ml /l for their management.

Caterpillar pests on tomato

- During this period, incidence of both tobacco caterpillar and fruit borer is more. For the management of these caterpillar pests spray indoxacarb 14.5 SC @ 0.75ml/l. Collect and destroy *Spodoptera litura* at early instar stage, when they feed gregariously, is desirable.

Grape thrips

- Thrips, *Scirtothrips dorsalis* is expected to occur on leaves of newly pruned Bangalore Blue. Spraying of imidacloprid 17.8 SL @0.3ml.L or thiamethoxam 25G @ 0.25g/L is recommended**.**

Mite on tomato

- Incidence of spider mites is noticed in some tomato fields. For mites management spray spiromesifen 22.9 SC 0.5ml/l.

Thrips on capsicum and chilli

- Incidence of thrips is increasing on capsicum grown under shade net/polyhouses and chilli grown under open conditions.
- Install blue sticky traps@8-10/acre
- Spray imidacloprid 200 SL @ 0.5 ml/l or fipronil 5SC @ 1.5ml/L.

Aphid on rose

- Aphid infestation may increase on rose in open field. Spray imidacloprid 200 SL @ 0.5 ml/l for its management. If the incidence is severe, spray thiamethoxam 25 WG 0.3g/L.

Jassids on bhendi

- Incidence of jassids is observed on okra.
- Install yellow sticky traps@8-10/acre
- Spray imidacloprid 17.8 SL @ 0.3 ml/l, if the crop is at pre-flowering stage. Otherwise, spray neem or pongamia soaps @ 0.5 %, thoroughly covering lower surface of leaves.

Epilachna beetle on brinjal

- Heavy incidence of epilachna beetle damage is seen on brinjal. Spray Azadirachtin 0.03 % WSP (300 ppm) 5.0 g/l or Quinalphos 20 % F 1.7 ml/l

Disease scenario

Disease scenario in relation to the weather data during second fortnight of October 2022

Fruit crops

Mango

- Initiation of powdery mildew (*Oidium mangiferae*) is expected. First spray to control powdery appearance with Sulphur 80 % WP (2g/l) or Hexaconazole 5% EC (1ml/l) should be given. Sulphur spray should be avoided during sunny, warm conditions as it may cause phytotoxicity to flowers and young fruits.

Vegetable Crops
Cucurbits

- Under the prevailing conditions of cool and dry weather, incidence and severity of powdery mildew (*Golovinomyces cichoracearum* & *Podosphaera xanthii*) and is expected to increase in cucurbits. To manage this disease give foliar spray of hexaconozole (0.1%) at 15 days interval.

Flower Crops

Chrysanthemum

- White Rust (*Puccinia horiana*) severity increases from first week of under prevailing weather conditions. The disease can be effectively managed by spraying Chlorothalonil (2g/L) or Propiconazole at (1ml/L) 3 to 4 times at 15 days interval

Fruit Crops

Grape

- Rust (*Phakopsora euvitis*) might continue to be noticed in grape vine orchards (var Bangalore Blue) and could be managed by the treatment with Chlorothalonil (0.2%) or Mancozeb (2%) along with sticker @ 0.5 ml/ l.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th November, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
November (1-15) 2022	26.7	17.3	80.6	61.5	3.03	2.58	30.1
	(27.8)	(17.0)	(84.4)	(57.8)	(3.3)	(2.2)	(24.8)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th November, 2022

During the first fortnight of the month i.e., 1st to 15th November, 2022, the mean maximum temperature decreased by 2.1 °C and increased by 1.0 °C as compared to previous fortnight. The mean maximum and minimum temperatures decreased by 0.7 °C and 1.1 °C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and the afternoon increased by 4.7 % and 11.9 % respectively as compared to the previous fortnight. There was 30.1 mm of rainfall during the fortnight.

Crop weather situation

Rainfed vegetables and fruits might be supplemented with nutrients by means of foliar spray. Farmers may take up spray of banana special in mango & vegetable special in all vegetables. Wherever FYM or compost is added, it may be mixed with Arka Microbial Consortium.

Incidence of insect pests

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

Thrips on grapes

Thrips, *Scirtothrips dorsalis* is expected to occur on leaves of newly pruned Bangalore Blue. Spray fipronil 5 SC @ 1.5ml/L or *Metarhizium* formulations.

Caterpillar pests on tomato

- With the prevailing weather, incidence of various caterpillar pests like tobacco caterpillar and tomato fruit borer may increase on tomato. For the management of both these caterpillar pests, spray indoxacarb 14.5 SC @ 0.75ml/l.

Tomato moth

- Install tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre
- Spray indoxacarb 14.5SC @ 0.75 ml/litre or spinosad 45SC @ 0.3ml/l

Aphids on brinjal & bhendi

- Incidence of aphids is increasing on brinjal and bhendi. If the crop is at preflowering stage, spray imidacloprid @ 0.3 ml/l. After the fruit set, spray neem or pongamia soaps @ 10g/l or pulverized neem seed powder extract (NSPE) 4%, by covering the lower surface of the leaves thoroughly.

Mites on tomato

- During the period, incidence of mites is observed in different tomato fields. Spray spiromesifen 22.9SC @ 0.5 ml/l for their management

Aphids on rose and beans

- Aphid infestation may increase on rose and other bean vegetables. Spray imidacloprid 200SL @ 0.5 ml/l for their management

***Helicoverpa* on china asters**

- Incidence of *Helicoverpa* may increase on china asters. Spray indoxacarb 14.5 EC @ 0.75 ml/l for its management.

Disease scenario

Disease scenario in relation to the weather data during first fortnight of November 2022

Fruit crops

Grapes

- Downy mildew and anthracnose need to be monitored. For the management of downy mildew application of metalaxyl + mancozeb (0.2%)/ Al Fosetyl (0.2%)/ dimethomorph (0.8%) + mancozeb (0.2%) and for anthracnose spraying with propineb (0.2%)/ chlorothalonil (0.2%)/ are effective. Rust might continue to be noticed in grape vine orchards (var Bangalore Blue) and could be managed by the treatment with chlorothalonil (0.2%) or azoxystrobin at 0.05% along with sticker @ 0.5 ml/ l.

Banana

- Sigatoka leaf spot (*Mycospheralla* sp.) disease severity increases under prevailing weather conditions. Sigatoka could be managed by spraying propiconazole 25% EC at 1ml/L along with spray adjuvant @ 0.5ml/L.

Vegetable crops

Cucurbits

- Under the prevailing conditions of cool and wet weather, incidence and severity of Downy mildew (*Pseudoperanospora cubensis)* favour the disease. Spray Zineb 75%WP @2g/L or Ametoctradin + Dimethomorph 20.27% w/w SC @2g/l.

Chilli

- Prevailing weather condition favours powdery mildew (*Leveillula taurica*) development in chilli. To manage this disease give foliar sprays of or Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC @1ml/L or Tebuconazole 50% + Trifloxystrobin 25% WG (0.5g/l) at 10 - 12 day intervals (2-3 sprays).

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 30th November, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
November (16-30) 2022	27.4	14.8	82.3	49.1	3.1	1.5	7.1
	(27.1)	(17.6)	(85.9)	(62.0)	(3.4)	(2.9)	(50.1)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 30th November, 2022

During the second fortnight of the month i.e., 16th to 30th November, 2022, the mean maximum temperature increased by 0.7 ºC and the mean minimum temperature decreased by 2.5 ºC as compared to previous fortnight. The mean maximum temperatures decreased by 0.7 °C and mean minimum temperature increased by 0.6 °C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning increased by 1.7 % and in the afternoon decreased by 12.4 % as compared to the previous fortnight. There was 7.1 mm of rainfall during the fortnight.

Crop weather situation

Top dressing of fertilizers in vegetable crops can be taken up. Routine agronomic practices both in vegetables and fruit crops should be continued. Early pruning of crops like pomegranate and grape could be taken up. Lesser rainfall necessitates frequent irrigations for standing crops. Wherever green manure crops are grown or residue is available, these may be incorporated in to the soil for better decomposition.

Incidence of insect pests

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

Hoppers on mango:

- Wherever flowering has started, incidence of hoppers is expected to occur on mango. Spray Azadirachtin 3000 ppm @ 2 ml/l, if the hopper population is low to moderate. If the number exceeds 4 per panicle spray with imidacloprid 200 SL @ 0.25 ml/l. If blossom webber is noticed, spray lambda cyhalothrin 5 EC @ 0.5 ml/l at early panicle emergence. Add stickers for enhancing the efficacy. Also direct the sprays to the trunks to check hibernating adults of stone weevils and hoppers.

Cabbage Diamond back moth:

- Has been occurring in severe form. Spraying of neem soap (10g/L), neem seed powder extract @ 40g/litre or Arka Neem pellets @ 30G /litre at 10 days intervals will be effective starting from 20 days after planting till 60-70 DAT.

Tomato fruit borer:

- With the prevailing weather, incidence of tomato fruit borer may increase on tomato. For its management, spray *Ha*NPV @ 250 LE/ha during evening hours or spray indoxacarb 14.5 SC @ 0.75ml/l, if the incidence is very high. Proper waiting periods are to be followed before harvest of tomatoes.

Midge on chilli:

- Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage. Spray thiamethoxam 70WG@ 0.3 g/l for their management.

Aphids on cucurbits

- Aphid infestation may increase on different cucurbits. Spray imidacloprid 17.8 SL @ 0.5 ml/l for their management.

Disease scenario

Disease scenario in relation to the weather data during second fortnight of November 2022

Fruit crops

Mango

- Powdery mildew appears on flower buds and leaves. At this point of time application of wettable sulphur (0.2%) along with spray adjuvant @ 0.5 ml/L is recommended.

Banana

- Sigatoka leaf spot (*Mycospheralla sp*.) require proper attention. Sigatoka could be managed by spraying propiconazole 25EC (0.1%)/ carbendazim+mancozeb carbendazim 12% + mancozeb 63% WP @ 2g/L (0.1%).

Vegetable crops

Tomato

- Late blight (*Phytophthora infestans*) severity increases under prevailing weather conditions. For the management of late blight, spray mancozeb 75 %WP /Zineb 75 %WP (2g/l)/ Ziram 80 %WP (2g/l)/propineb 70 %WP (3g/L) as protective sprays followed by famoxadone 16.6%+ cymoxanil 22.1%SC (1g/l) or metiram 55% + pyraclostrobin 5% WG (3g/l) as curative sprays

Okra

- The prevailing weather favours initiation and development of powdery mildew (*Erysiphe cichoracearum*) in okra. The disease can be effectively managed by spraying mancozeb or zineb (2g/l) or carbendazim (1g/l) or sulphur 80% WP @3g/L 3 to 4 times at 15 days interval.

Flower crops

Chrysanthemum

- Prevailing weather conditions increases rust severity. To manage this disease spray chlorothalonil 75% WP (2g/l) followed by propiconazole 25% EC (1ml/l) at 15 days interval.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 1st to 15th December, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
December (1-15) 2022	26.4	16.4	82.9	57.7	2.6	2.2	75.1
	(26.9)	(16.8)	(84.2)	(59.2)	(2.8)	(3.6)	(15.6)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 1st to 15th December, 2022

During the First fortnight of the month i.e., 1st to 15th December, 2022, the mean maximum temperature decreased by 1.0 ºC and the mean minimum temperature increased by 1.6 ºC as compared to previous fortnight. The mean maximum temperatures and mean minimum temperature decreased by 0.2 °C and 0.8 °C respectively as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and afternoon increased by 0.6 % and 8.6 % respectively as compared to the previous fortnight. There was 75.1 mm of rainfall during the fortnight.

Crop weather situation

Necessary drainage should be provided in the field as high rainfall was observed during the fortnight. For the rabi vegetables which have already been transplanted top dressing of N @50 kg/ha may be given. Vegetable farmers may undertake spray of Arka Vegetable Special. If pollination is completed mango farmers are advised to take up spray of Arka Mango Special.

Incidence of insect pests

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

Hoppers on mango:

- Wherever flowering has started, incidence of hoppers is expected to occur on mango. Spray Azadirachtin 3000 ppm @ 2 ml/l, if the hopper population is low to moderate. If the number exceeds 4 per panicle spray with imidacloprid 200 SL @ 0.25 ml/l. If blossom webber is noticed, spray lambda cyhalothrin 5 EC @ 0.5 ml/l at early panicle emergence. Add stickers for enhancing the efficacy.

Tomato fruit borer:

- With the prevailing weather, incidence of tomato fruit borer may increase on tomato. For its management, spray *Ha*NPV @ 250 LE/ha during evening hours or spray indoxacarb 14.5 SC @ 0.75ml/l, if the incidence is very high. Proper waiting periods are to be followed before harvest of tomatoes.

Midge on chilli:

- Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage. Spray thiamethoxam 70WG@ 0.3 g/l for their management.

Thrips on capsicum and chilli:

- Incidence of thrips is increasing on capsicum grown under shade net/polyhouses and chilli grown under open conditions. Spray imidacloprid 200 SL @ 0.5 mL/l or fipronil 5 SC @ 1.5 ml/l.

Aphids on cucurbits

- Aphid infestation may increase on different cucurbits. Spray imidacloprid 17.8 SL @ 0.5 ml/l for their management.

Disease scenario

Disease forecast based on weather conditions prevailed during first fortnight of December 2022

Fruit crops

Grapes

- Downy mildew and anthracnose are important diseases in this period. For the management of downy mildew application of Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%)/ Dimethomorph (0.8%) + Mancozeb (0.2%) and for anthracnose spraying with Propineb (0.2%)/ Chlorothalonil (0.2) are effective.

Mango

- Powdery mildew requires attention. At this point of time application of wettable suphur (0.2%) along with sticker @ 0.5 ml/L is recommended. Wettable Sulphur should not be applied if the temperature is higher. Anthracnose spots may increase on foliage. Prevention with chlorothalonil at 0.1% is recommended.

Banana

- Sigatoka leaf spot (*Mycospheralla sp*.) require proper attention. Sigatoka could be managed by spraying propiconazole 25EC (0.1%)/ carbendazim+mancozeb carbendazim 12% + mancozeb 63% WP @ 2g/L (0.1%).

Pomegranate

- Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides)* may remain moderate. Application of chlorothalonil (0.2%) /Antracol (0.2%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.

Papaya

- Infection of Black spot (*Asperisporium caricae*) is increasing.Application of Chlorothalonil (0.2%) Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

Vegetable crops

Solanaceous vegetables

- Powdery mildew requires attention. At this point of time application of wettable suphur (0.2%) along with sticker @ 0.5 ml/L is recommended. Leafspots and Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

Cucurbits vegetables

- Powdery mildew may become problem. Application of chlorothalonil (0.2%) as preventive spray and tebuconazole (0.1%) at severe stages may help. For the downy mildews spray of ridomil 0.1% will help.

Flower crops

Chrysanthemum

- Spraying chlorothalonil at 2g/l will prevent the rust incidence. While propiconazole at 0.1% will help as a curative measure.

Rose

- Powdery mildew of rose in polyhouse as well as field grown crops will increase. tebuconazole or hexaconazole (at 0.1%) or azoxystrobin at 0.05% would reduce the disease severity.

CROP WEATHER SITUATION
METEOROLOGICAL DATA OF
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089

Period: 16th to 31st December, 2022
Latitude : $13^0 7^1$ N **Longitude : $72^0 29^1$E** **Altitude : 890 M**

Fortnight	Temperature (^{0}C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm) Mean Max.
	Mean Max.	Mean Min.	Mean At 7.30AM	Mean at 1.30 PM			
December (16-31) 2022	27.4	13.1	78.1	48.1	3.58	2.29	0.00
	(27.8)	(14.0)	(82.4)	(50.5)	(3.6)	(3.3)	(0.00)

* Figures in the parentheses indicate the mean values during the corresponding period for the previous 5 years

Fortnight from 16th to 31st December, 2022

During the Second fortnight of the month i.e., 16th to 31st December, 2022, the mean maximum temperature increased by 1.0 ºC and the mean minimum temperature decreased by 3.3 ºC as compared to previous fortnight. The mean maximum temperatures increased by 0.9 ºC and mean minimum temperature decreased by 2.8 ˚C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in the morning and afternoon decreased by 4.8 % and 9.6 % respectively as compared to the previous fortnight. There is no rainfall reported during this fortnight.

Crop weather situation

Low temperatures can cause growth reduction due to lower nutrient absorption. Therefore, top dressing of fertilizers may be given to rabi vegetables. Also, foliar spray of mango special for mango, banana special for banana and vegetable special for vegetables may be given to improve growth. Wherever possible soil surface must be mulched to prevent evaporation of water.

Incidence of insect pests

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

Hoppers on mango:

- Incidence of hoppers is observed on mango. Spray Azadirachtin 3000 ppm @ 2 ml/l, if the hopper population is low to moderate. If the number exceeds 4 per panicle spray with *imidacloprid 17.8 SL @ 0.5 ml/l or oxydemeton – methyl 25% EC @ 2 ml/l or dimethoate 30% EC @ 2ml/litre at early panicle emergence.

Flower webbers/inflorescence caterpillars on mango:

- Besides hoppers, inflorescence caterpillars which web the flowers and feed inside are potential pests on mango during January. Application of lambda cyhalothrin 5EC @ 0.5ml/L or cypermethrin 25 EC @1ml/L are useful to control the pest.

Banana skipper:

- Skipper butterfly is becoming is serious pest on banana. Larva rolls the leaves and feed by remaining inside. Affected leaves to be mechanically removed and destroyed. In case of severe infestation, spraying of quinolphos 25EC @ 2ml/L or chlorpyrifos 20EC@ 2.5ml/L is advised.

Tomato fruit borer:

- With the prevailing weather, incidence of tomato fruit borer may increase on tomato. For its management, spray *Ha*NPV @ 250 LE/ha during evening hours or spray flubendiamide 20 WG @0.2g/l, indoxacarb14.5SC @ 0.5ml/l, if the incidence is very high. Proper waiting periods are to be followed before harvest of tomatoes.

Tomato moth:

- Install tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre
- Spray indoxacarb 14.5SC @ 0.75 ml/litre or spinosad 45SC @ 0.3ml/l

Midge on chillies:

- Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage. Spray thiamethoxam25WG @ 0.3 g/l for their management.

Thrips on capsicum and chilli

- Incidence of thrips is increasing on capsicum grown under shade net/polyhouses and chilli grown under open conditions. Spray imidacloprid 200 SL @ 0.5 mL/l or fipronil 5 SC @ 1.5 ml/l.

***Thrips parvispisnus* on chilli**

- severe flower drops, and yield loss
- Install blue sticky traps @50/acres
- Spray neem oil @2.5ml/litre, rotate with *Beaveria bassiana* @ 5g/litre or *Lecanicillium lecanii* @ 5g/litre
- Spray imidacloprid 200 SL @ 0.5 mL/l or fipronil 5 SC @ 1.5 ml/l.

Aphids on cucurbits

- Aphid infestation may increase on different cucurbits. Spray imidacloprid 17.8 SL @ 0.5 ml/l for their management.

Disease scenario

Fruit crops

Grapes

- Powdery mildew infection is expected to increase. Application of tebuconazole 25.90% EC at 1ml/L along with sticker @ 0.5 ml/ l is recommended for the management of disease.

Mango

- Powdery mildew requires attention. At this point of time application of wettable sulphur (2g/L) along with sticker @ 0.5 ml/L is recommended. It should not sprayed during bright sunshine hours.

Banana

- Sigatoka leaf spot (*Mycospheralla* sp.), disease needs proper attention. Sigatoka could be managed by spraying propiconazole 25%EC (0.1%).

Vegetable crops

Cucurbits vegetables

- Prevailing humid cool conditions and dew favours downy mildew (*Pseudoperanospora cubensis*) development in cucurbits. To manage this disease give foliar spray of zineb75%WP @2g/L followed by ametoctradin + dimethomorph 20.27% w/w SC @2g/L at 10 days interval