

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

Period: 1st to 15th January, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (^o C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
January 1 to 15, 2021	25.85	17.74	90.00	71.13	2.71	5.18	12.10
	(28.8)	(13.9)	(78.7)	(39.5)	(4.0)	(2.7)	(0)

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

Fortnight from 1st to 15th January, 2021

During the first fortnight of the month i.e., from January 1st to 15th, 2021, the average maximum temperature decreased by 1.55^oC and minimum temperature increased by 2.74^oC as compared to previous fortnight. The average maximum temperature increased by 1.0^oC and minimum temperature decreased by 1.3^oC when compared to the average values of the corresponding period for the previous five years. The percent relative humidity decreased by 0.7% in morning and increased by 16.23% during afternoon, as compared to the previous fortnight. There was 12.1 mm rainfall during the fortnight.

Crop weather situation

This fortnight recorded a rainfall of 12.10 mm with high R.H and wind speed. 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 and flower crops Zn and Fe 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

- Incidence of hoppers is expected on mango. Spray Azadirachtin 10000 ppm @ 3 ml/L, if the hopper population is low to moderate. If the number exceeds 4 per panicle spray with 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

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. For its management, spray HaNPV @ 250 LE/ha during evening hours or spray indoxacarb 14.5 SC @ 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.

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.

Midge on chillies

- Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage.
- Spray thiamethoxam 25 WG @ 0.3 g/l 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 17.8SL@ 0.5 ml/l for their management.

Disease Scenario

Disease forecast based on weather parameters during the first fortnight of January, 2021.

Fruit Crops

Fruit crops

Grape

- Anthracnose and Powdery mildew (*Uncinulanecator*) infection may be noticed. For anthracnose application of Difenconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendazim + Mancozeb (0.2%) /Bitertanol (0.2%) whereas for powdery mildew Application of Azoxystrobin (0.1%) or Triadimefon (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 Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

Banana

- Sigatoka leaf spot (*Mycosphaerella sp.*), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) Macrophoma fruit spot disease needs proper attention.
- Sigatoka could be managed by spraying Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridemorph (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.

Mango

- Powdery mildew requires attention. At this point of time 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 (Dikar) (0.3%) or Tridemorph (0.1%) or Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenconazole (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%).

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.

Papaya

- Infection of Black spot (*Asperisporium caricae*) may further increase. Whereas 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.

Vegetable crops

Solanaceous and Cucurbitaceous vegetables

Powdery mildew

- Incidence will be high in all solanaceous and cucurbitaceous vegetables. 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.

Ornamental Crops

Rose and Gerbera

Powdery mildew

- Spraying azoxystrobin at 0.1% along with sticker 0.5ml/l will help in reducing powdery mildew spread under protected cultivation. In not spread extensively tebuconazole or hexaconazole at 0.1% with sticker also will help.

Virus 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, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (^o C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
January, 16 to 31, 2021	29.2	12.9	88.9	45.0	4.3	4.0	0
	(28.2)	(14.0)	(81.6)	(42.3)	(3.8)	(3.0)	(0.2)

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

Fortnight from 16th to 31st January, 2021

During the second fortnight of the month i.e., from January 16th to 31st, 2021, the average maximum temperature increased by 3.35^oC and minimum temperature decreased by 4.84^oC as compared to previous fortnight. The average maximum temperature decreased by 0.6^oC and minimum temperature increased by 0.1^oC as compared to the average values of the corresponding period for the previous five years. The percent relative humidity decreased by 1.1% in morning and 26.13% during afternoon, as compared to the previous fortnight. There was no rainfall during the fortnight.

Crop weather situation

Average maximum temperature, wind speed and evaporation rates are slightly higher than the average values of previous 5 years. Basins of tree crops may be covered with available mulches to reduce evaporation and conserve moisture. 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.

During the period, profuse flowering and fruit set was noticed in almost all the varieties of mango.

Incidence of pests and diseases

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.

Fruit Crops

Hoppers on mango

- Incidence of hoppers is expected on mango. Spray Azadirachtin 10000 ppm @ 3 ml/L, if the hopper population is low to moderate. If the number exceeds 4 per panicle spray with 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 feeds by remaining inside. Affected leaves to be mechanically removed and destroyed. In case of severe infestation, spraying of quinolphos 25EC @ 2ml/L or chlorpyrifos 20 EC @ 2.5ml/L is advised.

Vegetable Crops

Tomato fruit borer

- With the prevailing weather, incidence of tomato fruit borer may increase on tomato. For its management, spray *HaNPV* @ 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 14.5 SC @ 0.75 ml/litre or spinosad 45 SC @ 0.3ml/l

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.

Midge on chillies

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

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 and rose. Thoroughly spray neem soap or Pongamia soap (1 %) or pulverised neem seed powder extract (NSPE) 4 % for their management.

Flower Crops

Aphids on and rose

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

Thrips on rose

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

Mites on Rose

- 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.

Disease Scenario

Disease forecast based on weather parameters during the second fortnight of January, 2021.

Fruit crops

Mango

- Powdery mildew requires attention. At this point of time application of wettable sulphur is not advisable if high temperature prevails. 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.

Grape

- Anthracnose and Powdery mildew (*Uncinula necator*) infection may be noticed. For anthracnose application of Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) whereas for powdery mildew Application of Azoxystrobin (0.1%) or Triadimefon (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 Bitertanol (0.2%) along with sticker @ 0.5 ml/ l.

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.

Banana

- Sigatoka leaf spot (*Mycosphaerella* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) Sigatoka could be managed by spraying propiconazole 0.1% whereas crown rot and anthracnose 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.

Papaya

- Infection of Black spot (*Asperisporium caricae*) may further increase. Whereas 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.

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.
- **Anthracnose** in vegetables will increase especially in chillies. For anthracnose application of Difenconazole (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** 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. In not spread extensively tebuconazole or hexaconazole at 0.1% with sticker also will help.

Virus 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.

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METEOROLOGICAL DATA OF
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HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

Period: 1st to 15th February, 2021

Latitude : 13⁰⁷1 N

Longitude : 72⁰²⁹1E

Altitude : 890 M

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
February 1 to 15, 2021	29.3	11.4	83.4	33.8	5.3	4.6	0.0
	(29.6)	(15.7)	(71.5)	(39.5)	(5.0)	(3.3)	(2.4)

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

Fortnight from 1st to 15th February, 2021

During the first fortnight of the month i.e., from February 1st to 15th, 2021, the average maximum temperature increased by 0.1.°C and minimum temperature decreased by 1.5°C as compared to previous fortnight. The average maximum and minimum temperatures increased by 1.4°C and 1.7°C, respectively when compared to the average values of the corresponding period for the previous five years. The percent relative humidity decreased by 5.5% and 11.2% in morning and afternoon, respectively as compared to the previous fortnight. There was no rainfall during the fortnight.

Crop weather situation

During the last fortnight the temperatures were higher, wind speed and evaporation rates were higher and there was no rainfall at all compared to the average values of previous five years. Supplemental irrigation with mulching will help in retaining sufficient moisture for plant growth. Due to increase in temperature and growth rate, deficiencies of K in banana and tomato may be problem in sandy soil. Farmers are advised to take up foliar spray followed by soil application of potash.

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

- Incidence of hoppers is expected on mango. Spray Azadirachtin 10000 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 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

Banana skipper

- Skipper butterfly is becoming a serious pest on banana. The larvae 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. For its management, spray HaNPV @ 250 LE/ha during evening hours or spray indoxacarb 14.5 SC @ 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.

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.

Midge on Chilli

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

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 17.8SL @ 0.5 ml/l for their management.

Aphids on Beans

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

Ornamental Crops

Aphids on rose

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

Thrips on rose

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

Mites on Rose

- 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.

Disease Scenario

Disease forecast based on weather parameters during the first fortnight of February, 2021.

Fruit crops

Grape

- Anthracnose and Powdery mildew (*Uncinula necator*) infection may be noticed. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) whereas for powdery mildew Application of Azoxystrobin (0.1%) or Triadimefon (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 Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

Mango

- Powdery mildew requires attention. At this point of time application of wettable sulphur is **not advisable** because of high temperature. Anthracnose spots might further increase on foliage.
- Application of Mancozeb + Dinocap (Dikar) (0.3%) or Tridemorph (0.1%) 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%).

Vegetable crops

Anthracnose

- 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.

Virus 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.

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

Period: 16th to 28th February, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
February 16 to 28, 2021	30.8	15.5	81.6	43.8	5.3	4.5	15.2
	(31.6)	(15.1)	(66.8)	(30.4)	(6.1)	(3.7)	(0.0)

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

Fortnight from 16th to 28th February, 2021

During the second fortnight of the month i.e., from February 16th to 28th, 2021, the average maximum and minimum temperature increased by 1.5^oC and 4.1^oC respectively as compared to previous fortnight. The average maximum temperature increased by 2^oC and minimum temperature decreased by 0.6^oC when compared to the average values of the corresponding period for the previous five years. The percent relative humidity decreased by 1.8% in morning and increased by 10% in afternoon as compared to the previous fortnight. There was 15.2 mm rainfall during the fortnight.

Crop weather situation

As the day temperatures increased and wind speed was more frequent protective irrigations may be given for late *rabi* vegetables. Mulching may be provided to reduce water loss through evaporation.

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

- Incidence of hoppers may continue wherever flowering is delayed. Spray azadirachtin @ 3ml/L. or thiamethoxam 25WG @ 0.3 g/L or 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 attained lemon size (2-4 cm diameter), a spray of deltamethrin 2.5 SC @ 1ml/L will be effective.

Fruit fly Management

- In orchards where fruit set occurred early and have attained full size, erect methyl eugenol based fruit fly traps @ 6/acre.
- Collect and destroy fallen fruits.

Grapes

Mealy Bug

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

Vegetable Crops

Leaf miner 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.

Mites on tomato

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

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

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 18.5 SC @ 0.3 ml/l rotate with emamectin benzoate 5 SG 0.3g/liter followed by indoxacarb 14.5 SC @ 0.5 ml/litre.

Ornamental Crops

Thrips on rose

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

Disease Scenario

Disease forecast based on weather parameters during the second fortnight of February, 2021.

Fruit crops

Grape

- Anthracnose may be noticed. For Anthracnose application of Difenoconazole (0.05%) + Mancozeb (0.2%) whereas for 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. At this point of time application of wettable sulphur is **not advisable** because of high temperature. Anthracnose spots might further increase on foliage.
- Application of Mancozeb + Dinocap (0.3%) or Tridemorph (0.1%) 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

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

Virus 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, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
March 1 to 15, 2021	32.4	12.3	66.9	25.8	7.8	4.8	0.0
	(32.6)	(19.2)	(66.5)	(37.7)	(6.3)	(3.6)	(7.0)

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

Fortnight from 1st to 15th March, 2021

During the first fortnight of the month i.e., from March 1st to 15th, 2021, the average maximum temperature increased by 1.6^oC and minimum temperature decreased by 3.2^oC as compared to previous fortnight. The average maximum and minimum temperatures increased by 1^oC and 4.1^oC, respectively when compared to the average values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon decreased by 14.7% and 18%, respectively as compared to the previous fortnight. There was no rainfall during the fortnight.

Crop weather situation

There is no major difference in climatic parameters of first fortnight of March 2021 and previous 5 years average except in 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

- 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 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 occurred early and they attained full size, erect methyl eugenol based fruit fly traps @ 6/acre.
- Collect and destroy fallen fruits.

Grapes

Mealy Bug

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

Vegetable Crops

Leaf miner on tomato

- For their management spray indoxacarb 14.5SC@ 0.75 ml/litre or spinosad45SC @ 0.3ml/l

Mites on tomato

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

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

Whiteflies on tomato

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

Brinjal shoot and fruit borer

- Spray rynaxypyr 20SC @ 0.3 ml/l rotate with emamectin benzoate 5SG 0.3g/liter followed by indoxacarb @ 0.75 ml/litre.

Ornamental Crops

Thrips on rose

- For the management of Thrips on rose, spray imidacloprid 17.8 SL @ 0.5 ml/l or fipronil 5 SC @ 1.5ml/litre.

Disease Scenario

Disease forecast based on weather parameters during the first fortnight of March, 2021.

Fruit crops

Grape

- Anthracnose infection may be noticed.
- Application of Difenoconazole (0.05%) / Thiophanate methyl (0.1%) / Carbendazim + Mancozeb (0.2%) 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%) 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%).

Vegetable crops

Anthracnose

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

Virus 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 March, 2021

Latitude : 13⁰7¹ N

Longitude : 72⁰29¹E

Altitude : 890 M

Fortnight	Temperature (⁰ C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
March 16 to 31, 2021	34.1	15.4	68.6	29.4	8.98	4.54	0.0
	(34.6)	(19.1)	(68.8)	(36.0)	(6.7)	(3.4)	(11.4)

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

Fortnight from 16th to 31st March, 2021

During the second fortnight of the month i.e., from March 16th to 31st, 2021, the average maximum and minimum temperatures increased by 1.7⁰C and 3.1⁰C, respectively as compared to previous fortnight. The average maximum temperature increased by 2⁰C and minimum temperature decreased by 0.1⁰C when compared to the average values of the corresponding period for the previous five years. The percent relative humidity in both morning and afternoon was increased by 1.7% and 3.6%, respectively as compared to the previous fortnight. There was no rainfall during the fortnight.

Crop weather situation

There was no rainfall at all during the last fortnight. The evaporation and wind speed were higher compared to the average value of previous 5 years. This may result in low available moisture and available nutrients like K & B. To avoid fruit drop and crack, protective irrigation to be given.

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

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

Mango stone weevil

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

Fruit fly Management

- In orchards where fruit set occurred early and have attained full size, erect methyl eugenol based fruit fly traps @ 6/acre.
- Collect and destroy fallen fruits.

Grapes

Mealy Bug

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

Vegetable Crops

Leaf miner on tomato

- For its management spray Neem seed kernel extract 4% from nursery till flowering @ 7-10 days intervals.

Mites on tomato

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

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

Whiteflies on tomato

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

Brinjal shoot and fruit borer

- Spray Rynaxypyr 20SC @ 0.3 ml/l rotate with Emamectin benzoate 5SG 0.3g/liter followed by Indoxacarb 14.5 SC @ 0.5 ml/litre.

Ornamental Crops

Thrips on rose

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

Disease Scenario

Disease forecast based on weather parameters during the second fortnight of March, 2021.

Fruit crops

Grape

- Anthracnose infection may be noticed.
- Application of Thiophanate methyl (0.1%) / Carbendzim + Mancozeb (0.2%) 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 Difenconazole (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 @ 0.3%).

Vegetable crops

Anthracnose

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

Virus 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 April, 2021

Latitude : 13⁰7¹ N

Longitude : 72⁰29¹E

Altitude : 890 M

Fortnight	Temperature (⁰ C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
April 1 to 15, 2021	34.7	18.8	73.9	34.8	7.5	4.5	0.9
	(34.5)	(19.9)	(70.3)	(34.1)	(6.6)	(4.3)	(11.0)

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

Fortnight from 1st to 15th April, 2021

During the first fortnight of the month i.e., from April 1st to 15th, 2021, the average maximum and minimum temperatures increased by 0.6⁰C and 3.4⁰C, respectively as compared to previous fortnight. The average maximum temperature decreased by 0.1⁰C and minimum temperature increased by 0.8⁰C when compared to the average values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon was increased by 5.3% and 5.4%, respectively as compared to the previous fortnight. There was 0.9mm rainfall during the fortnight.

Crop weather situation

There was scanty rainfall during last fortnight compared to average value of previous 5 years rainfall. Frequent protective irrigation may be given to standing summer vegetable crops as well as fruit crops like banana. Fertilizer application may be avoided during this moisture deficit period. If this dry period continues fruit dropping will increase in mango. So optimum moisture may be maintained in mango orchards to retain set fruits.

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

Fruit fly

- As the fruits had attained maturity stage, incidence of fruit fly is expected.
- For its management installation of Methyl Eugenol traps @ 6 /acre can be done and these traps can be procured from IIHR or KVKs or Firms licensed to manufacture IIHR traps.
- Collection and destruction of fallen fruits
- Keep bait splash on tree trunks with 10% jaggery solution mixed with Deltamethrin 2.8EC
- Community approach at village level is recommended for the effective management of this pest

Grapes

Flea Beetle

- Incidence of flea beetle is expected on newly pruned vines.
- It is recommended to remove all loose bark of the vine.
- Rake the soil in basin to expose grubs and pupae to sunlight.
- Spray of Imidacloprid 200 SL @ 0.3ml/L or Lambda-cyhalothrin 5 EC @ 0.5ml/L at early bud sprout stage.

Grape Thrips

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

Vegetable Crops

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.

Thrips on chillis

- Incidence of thrips may increase on chilli and capsicum.
- For its management, spray Fipronil 5SC @ 1.5 ml/l or Spinetoram 11.7 SC@ 1ml/litre or Spinosad 45 SC @ 0.5ml/litre alternating with Imidacloprid 200 SL @ 0.5 ml/l at fortnightly interval if the crop is at early stage of infestation.
- Addition of 2 ml of Neem oil or Pongamia oil per every litre of insecticide spray solution enhances the efficacy of the chemicals against the pest.

Brinjal shoot and fruit borer

- If the incidence is moderate, release of *Trichogramma chilonis* @ 75,000 per week (for four weeks) is recommended
- Install pheromones traps in the field.
- If the incidence is very severe, 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.

Ornamental Crops

Thrips on rose

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

Disease Scenario

Disease forecast based on weather parameters during the first fortnight of April, 2021

Fruit crops

Mango

- Anthracnose spots on leaves may be noticed wherever short summer showers have occurred. In late flowering varieties, still blossom blight can be noticed. Spraying of Carbendazim or Thiophanate methyl at 0.1% will stop further spread.
- To prevent anthracnose on fruits, later pre harvest sprays of Chlorothalonil at 0.2% may be followed. Whereas in early maturing varieties spraying of Carbendazim or Thiophanate methyl at 0.1% will be recommended.
- Sooty mould should be still taken care it follows the hopper damage. For control 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 Chlorothalonil at 0.2% will take care stem end rot. However the fruits have be harvested with 2-3 inches of pedicel. Desapping has to be followed before storage.

Pomegranate

- Bacterial blight that can increase after summer showers.
- For its management one spray of Copper based fungicides is recommended after having the crop in the earlier months when the farmers are giving rest period

Vegetable crops

Anthracnose

- The incidence of anthracnose in vegetables will increase especially in chillies.
- For its management 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.

Virus 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.
- 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.

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

Period: 16th to 30th April, 2021

Latitude : 13⁰⁷1 N

Longitude : 72⁰²⁹1E

Altitude : 890 M

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
April 16 to 30, 2021	33.3	20.0	80.7	44.1	5.9	4.1	49.2
	(35.4)	(21.4)	(72.0)	(40.1)	(6.2)	(3.4)	(25.3)

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

Fortnight from 16th to 30th April, 2021

During the second fortnight of the month i.e., from April 16th to 30th, 2021, the average maximum temperature decreased by 1.4⁰C and minimum temperature increased by 1.2⁰C as compared to previous fortnight. The average maximum and minimum temperatures increased by 0.9⁰C and 1.5⁰C, respectively when compared to the average values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon was increased by 6.8% and 9.3%, respectively as compared to the previous fortnight. There was 49.2 mm rainfall during the fortnight.

Crop weather situation

There was a decrease in temperature, increase in relative humidity, slight increase in rainfall, and decrease in evaporation rate in last fortnight when compared with average values of previous 5 years. 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 favourable 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

Fruit fly

- As the mango fruits are in mature stage, fruit fly incidence is expected to increase across the varieties. For its management following management measures are suggested.
- Installation of methyl eugenol traps @ 6 /acre. Traps can be procured from ICAR-IIHR, Bangalore or KVKs
- Collection and destruction of fallen fruits
- Community approach at village level is recommended for the effective management of this pest

Vegetable Crops

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

Thrips on chillis

- Incidence of thrips may increase on chilli and capsicum.
- For its management, spray fipronil @ 1.5 ml/l alternating with imidacloprid 17.8SL @ 0.5 ml/l at fortnightly interval if the crop is at early stage of infestation.
- Addition of 2 ml of neem oil or *Pongamia* oil per every liter of insecticide spray solution enhances the efficacy of the chemicals against the pest.

Brinjal shoot and fruit borer

- 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, spray with rynaxypyr 15.5SC @ 0.3 ml/l

Ornamental Crops

Two spotted spider mite on rose (*Tetranychus urticae*)

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

Disease Scenario

Disease forecast based on weather parameters during the second fortnight of April, 2021

Fruit crops

Mango

- Anthracnose spots might further increase on foliage. Application of or 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. Hopper and other insect management are 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.

Nursery/ seedlings

- In nursery a 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.

Virus 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 May, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
May 1 to 15, 2021	33.2	21.8	82.5	54.1	5.3	4.3	96.0
	(34.7)	(21.7)	(74.2)	(43.6)	(5.5)	(3.2)	(50.6)

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

Fortnight from 1st to 15th May, 2021

During the first fortnight of the month i.e., from May 1st to 15th, 2021, the average maximum temperature decreased by 0.1^oC and minimum temperature increased by 1.8^oC as compared to previous fortnight. The average maximum temperature decreased by 0.7^oC and minimum temperature increased by 0.3^oC when compared to the average values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon was increased by 1.8% and 10% as compared to the previous fortnight. There was 96.0 mm rainfall during the fortnight.

Crop weather situation

There was good quantum of rainfall 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. Crop growth and yield of summer vegetables will be good. But this 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

Fruit fly

- As the mango fruits are in mature stage, fruit fly incidence is expected to increase across the varieties. For its management following management measures are suggested.
- Installation of methyl eugenol traps @ 6 /acre. Traps can be procured from IIHR, Bangalore or KVKs
- Collection and destruction of fallen fruits
- Community approach at village level is recommended for the effective management of this pest

Vegetable Crops

Thrips on chillis

- Incidence of thrips may increase on chilli and capsicum.
- Install blue stick traps @ 10-15/ acre
- For its management, spray fipronil @ 1.5 ml/l alternating with imidacloprid 17.8SL @ 0.5 ml/l at fortnightly interval if the crop is at early stage of infestation.
- Addition of 2 ml of neem oil or *Pongamia* oil per every liter of insecticide spray solution enhances the efficacy of the chemicals against the pest.

Brinjal shoot and fruit borer

- 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, spray with rynaxypyr 15.5SC @ 0.3 ml/l.

Ornamental Crops

Two spotted spider mite on rose (*Tetranychus urticae*)

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

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 based on weather parameters during the first fortnight of May, 2021

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°C) for ten minutes may be followed.
- Care should be taken that at the time of spraying there should be minimum of 15-20 day time is there before harvest.

Grape

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

Pomegranate

- Nodal Blight needs further attention due to the intermittent summer showers. Application of COC (0.2%) + Streptocycline (300 ppm) /l along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

Banana

- Low incidence of Sigatoka (*Mycosphaerella sp*) and other leaf spots needs attention.
- The disease can be managed by the application of propiconazole 0.1% whereas crown rot, anthracnose and Macrophoma fruit spot disease (especially 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%) or Ziride (0.4%) 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 chlorothalonil on tomato to avoid early leaf blight.
- In case of serious spread due to rain splash follow up spray with propineb (0.2%) or metiram (0.2%) or pyraclostrobin + metiram (0.2%) at fortnightly interval.

Onion

- To avoid the purple blotch and Stem phyllum 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 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, 2021

Latitude : 13⁰⁷1 N

Longitude : 72⁰²⁹1E

Altitude : 890 M

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
May 16 to 31, 2021	30.4	20.9	86.1	63.4	5.3	6.5	26.0
	(33.2)	(21.3)	(82.3)	(50.2)	(5.4)	(4.2)	(125.8)

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

Fortnight from 16th to 31st May, 2021

During the second fortnight of the month i.e., from May 16th to 31st, 2021, the average maximum and minimum temperatures decreased by 2.8⁰C and 0.9⁰C, respectively as compared to previous fortnight. The average maximum temperature and minimum temperatures decreased by 1.5⁰C and 0.4⁰C, respectively as compared to the average values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon increased by 3.6% and 9.3% as compared to the previous fortnight. There was 26.0 mm rainfall during the fortnight.

Crop weather situation

The low rainfall in this fortnight might have affected nutrient and water availability to *kharif* vegetables. Foliar spray of vegetable special micronutrient formulation recommended for at 5 g/litre to tomato, cabbage, cauliflower, brinjal, chillies at and 2 g/litre for cucurbits. The less rain fall may be good for the quality of mango. In acidic soils liming may be done and incorporated into the soil.

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

Fruit fly, *Bactrocera dorsalis*

- As the mango fruits are in mature stage, fruit fly incidence is expected to increase across the varieties. For its management following management measures are suggested.
- Installation of methyl eugenol traps @ 6 /acre. Traps can be procured from IIHR, Bangalore or KVKs.
- Collection and destruction of fallen fruits.
- Community approach at village level is recommended for the effective management of this pest.

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 chlorpyrifos @ 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.

Chilli Thrips

- Spray fipronil 5SC (1.5 ml/l) or imidacloprid 200 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/ m². This can also be mixed with water and applied as soil drench @ 2l/m². 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 dinetofuran 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 based on weather parameters during the second fortnight of May, 2021

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

Downy mildew

- 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%) /Antracol (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%) + Streptocycline (300 ppm) /l 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%) 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.

Ornamental Crops

- 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, 2021

Latitude : 13⁰7¹ N

Longitude : 72⁰29¹E

Altitude : 890 M

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
June 1 to 15, 2021	29.9	20.7	86.7	68.5	4.5	6.4	79.0
	(30.6)	(21.0)	(83.5)	(60.7)	(5.1)	(5.4)	(45.8)

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

Fortnight from 1st to 15th June, 2021

During the first fortnight of the month i.e., from June 1st to 15th, 2021, the average maximum and minimum temperatures decreased by 0.5⁰C and 0.2⁰C, respectively as compared to previous fortnight. The average maximum and minimum temperatures decreased by 2.6⁰C and 0.3⁰C when compared to the average values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon was increased by 0.6% and 5.1%, respectively as compared to the previous fortnight. There was 79 mm rainfall during the fortnight.

Crop weather situation

The amount of rainfall received is good and it is almost one and half times more than the average value of previous 5 years. 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

Stem Borer

- This period coincides with the emergence of adult beetles of trunk borer, *Batocera rufomaculata*.
- For its management plug active holes (can be diagnosed with the presence of fresh chewed wood material and excreta) with cotton dipped in Chlorpyrifos @ 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 control of Fruit Fly (*Bactrocera cucurbitae*), integrated approach may be followed.
- Installation of 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.

Thrips on Chillis

- For its management, 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/ m². This can also be mixed with water and applied as soil drench @ 2l/m². The same can be thoroughly filtered and sent along with drip or sprayed.

Ornamental Crops

Thrips on Rose

- 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.

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.

Disease Scenario

Disease forecast based on weather parameters during the first fortnight of June, 2021

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 Carbendazim (0.1%) or Thiophanate Methyl (0.1%) followed by post-harvest treatments with Hot water (52°C) for ten minutes is recommended.

Grape

- For control of Downy mildew, the application of 0.4g Dimethomorph + Mancozeb 2g/l or Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l is recommended. Lower surface of the leaves on the vines to be sprayed properly.
- For management of Anthracnose spraying of 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*) and 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.
- For management of Nodal Blight application of COC (0.2%) + Streptocycline (300 ppm) /l 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 diseases 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, continuous rain and warm weather favour the Downy mildews disease. For its management 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 Copperoxy 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, to control the insect vectors suitable insecticides to be applied.

Ornamental Crops

- Black spot of Rose can be managed by spray with Trifloxystrobin + Tebuconazole at 0.1% at 15 days interval.
- For the Downy mildew spray Metalaxyl + Mancozeb at 0.2% to control the disease.

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

Period: 16th to 30th June, 2021

Latitude : 13⁰⁷1 N

Longitude : 72⁰²⁹1E

Altitude : 890 M

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
April 16 to 30, 2021	29.0	19.9	85.1	63.0	3.8	6.7	20.3
	(29.4)	(20.4)	(83.4)	(61.6)	(3.9)	(6.2)	(38.6)

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

Fortnight from 16th to 30th June, 2021

During the second fortnight of the month i.e., from June 16th to 30th, 2021, the average maximum and minimum temperatures decreased by 0.9^oC and 0.8^oC, respectively as compared to previous fortnight. The average maximum and minimum temperature decreased by 1.2^oC and 0.6^oC when compared to the average values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon was decreased by 1.6% and 5.5%, respectively as compared to the previous fortnight. There was 20.3 mm rainfall during the fortnight.

Crop weather situation

Rainfall is slightly less than the average value of previous five years. Wind speed, evaporation, temperature and relative humidity are more or less same as the average value of previous five years. Due to low rainfall, supplemental irrigation may be given to crop like Banana. In soils where sufficient soil moisture is there field preparation may be completed

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

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 Chlorpyrifos @ 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, integrated approach may be followed like installation of 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.

Thrips on Chillis

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
Install pheromones traps in the field.

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.

Legume Pod Borer

Spray Indoxacarb 14.5SC @ 0.75ml/litre at 10 days interval from flowering stage

Root Knot Nematode

For control of root knot nematode, 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

Thrips on rose

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.

Whitefly on Gerbera (Polyhouses)

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

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

Midge on Crossandra

For management of Midge on Crossandra spray Imidacloprid @ 0.5 ml/l.

Disease Scenario

Disease forecast based on weather parameters during the second fortnight of June, 2021

Fruit crops

Grapes

Downy mildew of Grapes can be controlled by the application of 0.4g Dimethomorph + 2.00 g Mancozeb /l or Metalaxyl + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l. sprayed properly on Lower surface of the leaves on the vines.

The prevention of Anthracnose on fruits can be managed by later pre harvest sprays of Chlorothalonil at 0.2% may be followed. Whereas in early maturing varieties spraying of Carbendazim or Thiophanate methyl at 0.1% will be recommended.

Pomegranate

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

For the management of Nodal Blight, application of COC (0.2%) + Streptocycline (300 ppm) /along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

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 as control measures.

Vegetable crops

Tomato

It is the time for the protective sprays of contact fungicides like Mancozeb, Copper Oxchloride or Chlorothalonil 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

Control of Downy mildew in Cucurbits by spraying Chlorothalonil (0.2%) or Mancozeb(0.2%) or Metalaxyl -Mancozeb(0.2%) or Fosetyl-AI (0.2%) or Cymoxanil-Mancozeb(0.2%) at ten days intervals from onset of the disease.

Virual Diseases in Tomato & Chilly

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.

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

Period: 1st to 15th July, 2021

Latitude : 13⁰⁷1 N

Longitude : 72⁰²⁹1E

Altitude : 890 M

Fortnight	Temperature (°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 to 15, 2021	29.8	20.6	80.9	59.7	3.4	4.1	119
	(29.1)	(20.5)	(82.4)	(61.5)	(4.2)	(7.3)	(38.2)

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

Fortnight from 1st to 15th July, 2021

During the first fortnight of the month i.e., from July 1st to 15th, 2021, the mean maximum and minimum temperatures increased by 0.8⁰C and 0.7⁰C, respectively as compared to previous fortnight. The mean maximum temperature decreased by 0.3⁰C and minimum temperature increased by 0.1⁰C when compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon decreased by 4.2% and 3.3%, respectively as compared to the previous fortnight. There was 119 mm rainfall during the fortnight.

Crop weather situation

There was a good rainfall of 119 mm during the last fortnight compared to the mean value of previous 5 years. In case of heavy rainfall any Ca deficiency is observed in Tomato resulting in Blossom end rot it may be corrected by application of Calcium and boron. For standing crops like papaya which cannot tolerate water stagnation, basins may be drained out of water.

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

Stem Borer

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

Vegetable Crops

Fruit Fly on Cucurbits

- For the control of Fruit Fly (*Bactrocera cucurbitae*), integrated approach may be followed.
- Installation of 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.

Thrips on Chilli

- For the management of thrips, spray Fipronil 5 SC (1.5 ml/l) or Imidacloprid 200 SL (0.3 ml/l) alternatively 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 Chlorpyrifos 20 EC @ 5ml/l for killing larvae in the soil.

Legumes pod borer

- Spray Indoxacarb 4.5 SC @ 0.75ml/litre at 10 days interval from flowering stage.

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/ m². This can also be mixed with water and applied as soil drench @ 2l/m². The same can be thoroughly filtered and sent along the drip or sprayed.

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/ m². This can also be mixed with water and applied as soil drench @ 2l/m².The same can be thoroughly filtered and sent along the drip or sprayed.

Ornamental Crops

Thrips on Rose

- 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.

Whitefly on Gerbera (polyhouses)

- Spray Diafenthiuran 50 WP @ 1 g/l followed by Dinotofuran 20 SG@ 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 based on weather parameters during the first fortnight of July, 2021.

Fruit crops

Grape

- For control of Downy mildew, the application of 0.4g Dimethomorph + Mancozeb 2g/l or Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l is recommended. Lower surface of the leaves on the vines to be sprayed properly.

- For management of Anthracnose spraying of Propineb (0.2%)/ Chlorothalonil (0.2%)/ Carbendazim (0.1%)/ Thiophanate Methyl (0.1%) are effective along with sticker @ 0.5 ml/l
- Rust is observed on var Bangalore Blue, for its effective management treatment with Chlorothalonil (0.2%) or Azoxystrobin at 0.05% is recommended.

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.

Pomegranate

- Intensity of Leaf and Fruit Spot disease caused by *Pseudocercospora punicae* and Anthracnose of fruit and leaf (*C. gloeosporioides*) needs attention.
- 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.
- Fresh Bacterial blight infection can be seen due to rains so it requires continuous attention. Hence application of COC (0.2%) + Streptocycline (300 ppm) /l along with a sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

Vegetable crops

Tomato

- Foliar application of Copper oxychloride (0.3%) or Chlorothalonil (0.2%) or Mancozeb (0.2%) or Propineb (0.2%) or Metiram (0.2%) or Pyraclostrobin + Metiram (0.2%) at fortnightly interval will reduce the spread of Early leaf blight of tomato caused by *Alternaria* species.
- To prevent the Late blight of tomato caused by *Phytophthora infestans* spraying of Mancozeb (0.2%) or Copper oxychloride (0.3%), Copper hydroxide (0.2%) or Fosetyl-Al (0.2%) or pre-packed mixture of Metalaxyl+Mancozeb (0.2%) may be carried out that may reduce the risk of serious infection expected in the later part of the season.
- Spraying of Acephate at .01% or Imidacloprid at 0.03% will reduce the tospovirus infection spread by thrips.

Chillies and capsicum

- To prevent the Leaf blight by *Phytophthora capsici* spraying of Mancozeb (0.2%) or Copper oxychloride (0.3%), Copper hydroxide(0.2%) or Fosetyl-Al (0.2%) or pre-packed mixture of Metalaxyl Mancozeb (0.2%) may be carried out to reduce the risk of serious infection expected in the later part of the season.
- Spray of systemic insecticides at fortnightly intervals after transplanting, until the flowering stage will reduce vector transmitted viral diseases incidence.

Onion

- Application of fungicides such as Chlorothalonil (0.2 %) or Propineb (0.2 %) or Mancozeb (0.2%) at fortnightly intervals from onset of the disease may reduce the Purple blotch or Stemphylium leaf blight.

Cucurbits

- Spraying of Chlorothalonil (0.2%) or Mancozeb (0.2%) or Metalaxyl –Mancozeb (0.2%) or Fosetyl-AI (0.2%) or Cymoxanil- mancozeb(0.2%) 10 days intervals from onset of downy mildew can reduce the damage.

Ornamental Crops

Rose

- To avoid the Black spot in Rose prophylactic spray with contact fungicides like Chlorothalonil or Mancozeb at 0.2% along with sticker. In severe cases Trifloxystrobin+ Tebuconazole at 0.1% at 15 days interval can 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 can 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, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (^o 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 16 to 31, 2021	28.2	19.8	80.3	58.8	3.49	6.1	78.7
	(28.8)	(20.5)	(84.5)	(64.1)	(3.9)	(5.8)	(79.3)

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

Fortnight from 16th to 31st July, 2021

During the second fortnight of the month i.e., from July 15th to 31st, 2021, the mean maximum and minimum temperatures decreased by 1.6^oC and 0.8^oC, respectively as compared to previous fortnight. The mean maximum temperature decreased by 0.3^oC and minimum temperatures remains same when compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon decreased by 0.6% and 0.9%, respectively as compared to the previous fortnight. There was 78.7 mm rainfall during the fortnight.

Crop weather situation

There was sufficient rainfall during last fortnight. Inter-cultural operations may be carried out as the soil condition may be conducive. If due to heavy rainfall any Ca deficiency is observed in tomato resulting in blossom end rot it may be corrected by application of Calcium and Boron.

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 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*.

Leaf Webber

- 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.

Vegetable Crops

Fruit Fly on Cucurbits

- For the control of Fruit Fly (*Bactrocera cucurbitae*) an integrated approach may be followed.
- Installation of 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.
- 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
- 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 Fenazaquine 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/ m². This can also be mixed with water and applied as soil drench @ 2l/ m².The same can be thoroughly filtered and sent along with drip or sprayed.

Ornamental Crops

Mites on Rose

- For the management of mites, spray Milbemectin 1EC @ 1 ml/l.

Thrips on Rose

- 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.

Midge on Crossandra

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

Whitefly on Gerbera (polyhouses)

- Spray Diafenthiuran 50WP@ 1 g/l followed by Dinotofuran 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 July, 2021.

Fruit crops

Grape

- For control of Downy mildew, the application of 0.4g Dimethomorph + Mancozeb 2g/l or Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l is recommended. Lower surface of the leaves on the vines to be sprayed properly.
- For management of Anthracnose spraying of Propineb (0.2%)/ Chlorothalonil (0.2%)/ are effective along with sticker @ 0.5 ml/ l.
- Rust is observed on var Bangalore Blue, for its effective management treatment with Chlorothalonil is recommended.

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.

Pomegranate

- Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and Anthracnose of fruit and leaf (*C. gloeosporioides*) needs attention.
- Application of Chlorothalonil (0.2%) /Propineb (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.
- Fresh Bacterial blight infection can be seen due to rains so it requires continuous attention. Hence application of COC (0.2%) along with a sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

Sapota

- There was no appreciable change in the intensity of leaf spot (*P. indicia*) disease compared with last fortnight.
- Application of Zineb (0.3%) or Ziride (0.4%) along with sticker (0.5 ml /l) are recommended for their management.

Vegetable crops

Tomato

- Foliar application of Copper oxychloride (0.3%) or Chlorothalonil (0.2%) or Mancozeb (0.2%) or Propineb (0.2%) or Metiram (0.2%) or Pyraclostrobin + Metiram (0.2%) at fortnightly interval will reduce the spread of Early leaf blight of tomato caused by *Alternaria* species.
- To prevent the Late blight of tomato caused by *Phytophthora infestans* spraying of Mancozeb (0.2%) or Copper oxychloride (0.3%), Copper hydroxide (0.2%) or Fosetyl-Al (0.2%) or pre-packed mixture of Metalaxyl+Mancozeb (0.2%) may be carried out that may reduce the risk of serious infection expected in the later part of the season.
- Spraying of Acephate at .01% or Imidacloprid at 0.03% can reduce the tospovirus infection spread by thrips.

Chillies and capsicum

- To prevent the Leaf blight by *Phytophthora capsici* spraying of Mancozeb (0.2%) or Copper oxychloride (0.3%), Copper hydroxide(0.2%) or Fosetyl-Al (0.2%) or pre-packed mixture of Metalaxyl Mancozeb (0.2%) may be carried out to reduce the risk of serious infection expected in the later part of the season.
- Spray of insecticides like Monocrotophos (0.15%), Acephate (0.15%) or Hostothion (0.1%) at fortnightly intervals after transplanting, until the flowering stage can reduce vector transmitted viral diseases incidence.

Onion

- Application of fungicides such as Chlorothalonil (0.2 %) or Propineb (0.2 %) or Mancozeb (0.2%) at fortnightly intervals from onset of the disease may reduce the Purple blotch or Stemphylium leaf blight.

Cucurbits

- Spraying of Chlorothalonil (0.2%) or Mancozeb (0.2%) or Metalaxyl –Mancozeb (0.2%) or Fosetyl-AI (0.2%) or Cymoxanil- mancozeb(0.2%) 10 days intervals from onset of downy mildew can reduce the damage.

Ornamental crops**Rose**

- To avoid the Black spot in Rose prophylactic spray with contact fungicides like Chlorothalonil or Mancozeb at 0.2% along with sticker. In severe cases Trifloxystrobin+ Tebuconazole at 0.1% at 15 days interval can 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 can help.

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

Period: 1st to 15th August, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (°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			
August 1 to 15, 2021	29.7	19.9	77.2	53.3	4.0	5.6	10.2
	(28.0)	(20.9)	(83.5)	(67.9)	(3.7)	(6.2)	(51.0)

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

Fortnight from 1st to 15th August, 2021

During the first fortnight of the month i.e., from August 1st to 15th, 2021, the mean maximum and minimum temperatures increased by 1.5^oC and 0.1^oC, respectively as compared to previous fortnight. The mean maximum temperature and minimum temperatures decreased by 0.8^oC and increased by 0.4^oC, respectively as compared to the average values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon decreased by 3.1% and 5.5% as compared to the previous fortnight. There was 10.2 mm rainfall during the fortnight.

Crop weather situation

For those banana plantations which were planted during June- July first installment application of N, P₂O₅ and K₂O @ 50:30:60 g per plant may be applied. For guava also N, P₂O₅ and K₂O @ 60: 30 : 40 g/tree may be applied if fertilizer application has not been done already. For papaya land preparation and basal application of FYM @ 25 kg/tree fertilizer application may be done for September and October planting.

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.
- 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.
- Bait Splash of 40/ acre (150g jaggery + 500mlwater + 5ml Cypermethrin)

Chilli Thrips

- Spray Fipronil 5 SC (1.5 ml/l) or Difenthran 50WP @ 1g/litre or Thiacloprid 240 SC @ 0.5 ml/l alternately at fortnightly interval.

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, spray Wettable Sulphur @ 3 g/l or Propargite 57 EC @ 1.25 ml/l or Fenazaquin 10EC @ 1.5ml/litre.

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/ m². This can also be mixed with water and applied as soil drench @ 2l/m². The same can be thoroughly filtered and sent along with drip or sprayed.

Ornamental Crops

Rose Thrips

- Spray Imidacloprid 17.8 SL @ 0.5ml/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.

Mites on Rose

- For the management of mites spray Milbemectin1 EC @ 1 ml/l.

Midge on Crossandra

- Incidence of midge is increasing on crossandra. For its management spray Imidacloprid 17.8SL @ 0.5 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 based on weather parameters during the first fortnight of August, 2021

Fruit Crops

Grape

Downy mildew

- Control of Downy mildew by the application of 0.8 g Dimethomorph + 2.00 g Macozeb /L or Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%).

Rust:

- Rust needs to be taken care in grape vine orchards (var Bangalore Blue).
- Application of Chlorothalonil (0.2%) along with sticker @ 0.5 ml/ l is recommended.
- Lower surface of the leaves on the vines to be sprayed properly. In white varieties preventive sprays for anthracnose management with Difenconazole 0.05% or Thiophenate methyl 0.1% is done.

Banana

- Intensity of Sigatoka leaf spot (*Mycosphaerella* sp) may be moderate. For controlling application of Chlorothalonil (0.2%) is recommended.
- Moderate infection of Leaf (*Dieghtonella* spp.) and fruit spots (*Macrophoma* spp.) may be noticed that could be effectively managed by the pre-harvest sprays with Zineb + Hexaconazole (0.2%) or Thiophenate methyl (0.1%).

Pomegranate

- On fresh foliage and emerging flower buds infection of anthracnose might be noticed whereas Leaf and fruit spot disease caused by *Puedocercospora punicae* may become

serious .These can be managed by spraying Chlorothalonil (0.2%)/Antracol (0.2%)/Hexaconazole (0.1%) along with the sticker @ 0.5ml/l.

- For Bacterial Blight spray of Bordeaux mixture 1% along with Bronopol at 0.5% at 15 days interval will reduce the spread of the disease.

Vegetable Crops

- Spread of *Phytophthora* Blight is expected in Tomato, Chilli and other crop because of intermittent rains.
- For initial stages preventive spray with chlorathalonil (0.2%) and Bourdeaux mixture (1%) can help. In severe conditions where spread is faster spraying with Cymoxanil + Mancozeb (0.1%) is recommended.
- Powdery mildew may appear in Solanaceous (tomato, capsicum, chilli) and Cucurbitaceous vegetables (pumpkin, cucumber, ridge gourd etc.) with cool and dry weather.
- Hexaconazole at 0.2% spray with 0.5ml sticker/l will reduce the spread and severity. For *Alternaria* leaf spot spray Chlorothalonil or Dithane M 45 at 0.2% as preventive measure can reduce the disease incidence.

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

Period: 16th to 31st August, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (°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			
August 16 to 31, 2021	28.9	19.8	83.6	56.3	3.5	3.6	56.5
	(27.9)	(20.2)	(85.9)	(67.9)	(3.5)	(3.9)	(77.3)

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

Fortnight from 16th to 31st August, 2021

During the second fortnight of the month i.e., from August 16th to 31st, 2021, the mean maximum and minimum temperatures decreased by 0.8^oC and 0.1^oC, respectively as compared to previous fortnight. The mean maximum and minimum temperatures decreased by 0.1^oC and 0.7^oC 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 6.4% and 3% respectively as compared to the previous fortnight. There was 56.5 mm rainfall during the fortnight.

Crop weather situation

As there was less rainfall during this period compared to the average value of previous 5 years one or two irrigations may be given so that fruit size may not be affected in crops like guava. Similarly due to Boron and Zn deficiency in guava the fruits may be small and hard. Application of ZnSO₄ @ 50 g/tree or as a 1% spray along with 0.1% Boric acid might improve the size of the fruit.

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 and Thrips

- 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.

Vegetable Crops

Fruit Fly on Cucurbits

- For the control of Fruit Fly (*Bactrocera cucurbitae*) an integrated approach may be followed.
- Installation of Cue lure traps @ 15 traps/acre.
- Sanitation (complete destruction of infested fruits at each harvest)
- Bait spray (Lambda Cyhalothrin 5 EC@ 1 ml + jaggery @ 10g/L) at 10 days interval from the date of flowering.
- Bait splash of 40/ acre (150g jaggery + 500ml water + 5ml Lambda Cyhalothrin 5EC).

Mites on Tomato

- For the management of mites, spray Fenazaquin 10 EC @ 1.5ml/litre or Spiromesifen 22.9EC @ 0.5 ml/l.

Ash weevil on Brinjal

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

Ornamental Crops

Mites on Rose

- For the management of mites, spray Milbemectin 1EC @ 1 ml/l.

Thrips on Rose

- 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.

Midge on Crossandra

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

Whitefly on Gerbera (polyhouses)

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

Jasmine 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 forecast and management practices based on weather parameters during the second fortnight of August, 2021.

Fruit crops

Grape

- For control of Downy mildew, the application of 0.4g Dimethomorph + Mancozeb 2g/l or Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%)
- Rust is observed on var Bangalore Blue, for its effective management treatment with Chlorothalonil (0.2%) along with sticker @ 0.5 ml/ l is recommended. Lower surface of the leaves on the vines to be sprayed properly.
- In white varieties, preventive sprays for management of anthracnose with Difenconazole 0.05% or Thiophenate Methyl 0.1% can be effective.

Banana

- Intensity of Sigatoka leaf spot (*Mycosphaerella sp*) may be moderate application of Chlorothalonil (0.2%) is recommended.
- Moderate infection of Leaf (*Dieghthonella spp.*), and fruit spots (*Macrophoma spp.*) may be noticed that could be effectively managed by the pre-harvest sprays with Zineb + Hexaconazole (0.2%) or Thiophanate methyl (0.1%).

Pomegranate

- On fresh foliage and emerging flower buds intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose might be noticed.
- Application of Chlorothalonil (0.2%) %)/ Antracol (0.2%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l can be recommended.
- For bacterial blight spray of Bordeaux mixture 1% along with Bronopol at 0.5% at 15 days interval will reduce the spread of the disease.

Vegetable Crops

- Because of intermittent rains spread of *Phytophthora* blight is expected in tomato, chilli and other crops. For initial stages preventive spray with Chlorothalonil (0.2%) and Bordeaux mixture(1%) can be effective. In severe conditions where spread is faster spraying with Cymoxanil + Mancozeb (0.1%) is recommended.
- In Solanaceous (tomato, capsicum, chilli) and Cucurbitaceous vegetables (pumpkin, cucumber, ridge gourd etc.) Powdery mildew may appear with cool and dry weather. Hexaconazole at 0.2% spray with 0.5ml sticker/l will reduce the spread and severity. For *Alternaria* leaf spot, Chlorothalonil or Dithane M 45 at 0.2% spray as preventive measure can reduce the disease incidence.

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

Period: 1st to 15th September, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (°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			
September 1 to 15, 2021	28.7	19.9	78.6	58.0	3.9	5.8	34.4
	(28.4)	(20.2)	(85.1)	(65.5)	(3.6)	(3.3)	(106.8)

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

Fortnight from 1st to 15th September, 2021

During the first fortnight of the month i.e., from 1st to 15th September, 2021 the mean maximum temperature decreased by 0.2 °C and minimum temperatures increased by 0.1 °C as compared to previous fortnight. The mean maximum temperature increased by 0.5 °C and minimum temperature remains same as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in morning decreased by 5% and afternoon increased by 1.7% as compared to the previous fortnight. There was 34.4 mm rainfall during the fortnight.

Crop weather situation

Rainfall received during this period is less than the normal. For crops like Banana one supplemental irrigation may be given. Vegetables planted late in the season may be given top dressing. For Banana in fruiting or flowering stage a foliar spray with Banana special may be given.

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 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

- Fruit sucking moth damage is expected on matured fruits. Netting the orchards is recommended.

Thrips

- Thrips incidence is expected on new flush spraying Fipronil 5 SC @ 1.5ml/L can be recommended.

Vegetable Crops

Fruit Fly on Cucurbits

- For the control of Fruit Fly (*Bactrocera cucurbitae*) an integrated approach may be followed.
- Installation 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 + 500ml water + 5ml Lambda Cyhalothrin 5EC).

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 at pre-flowering stage .Otherwise, spray Neem or Pongamia soaps @ 1 %, thoroughly covering lower surface of leaves.

Ornamental Crops

Thrips on Rose

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

Whitefly on Gerbera (polyhouses)

- Spray Diafenthiuran 50WP@ 1 g/l followed by Dinotofuran 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 forecast and management practices based on weather parameters during the first fortnight of September, 2021.

Fruit crops

Grape

- After forward pruning buds on the grape vines should be protected against the infection of Downy mildew by the application of 0.8 g Dimethomorph + 2.00 g Mancozeb /L or Metalaxyl + Mancozeb (0.2%)/ Al Fosetyl (0.2%).
- Rust is observed on var Bangalore Blue, for its effective management treatment with Chlorothalonil (0.2%)/ Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l is recommended. Lower surface of the leaves on the vines to be sprayed properly.

Mango

- Intensity of Leaf spot (*P. mangiferae* / *C. gloeosporioides*) may increase.
- Application of Zineb (0.2%) / Chlorothalonil (0.2%) or Mancozeb (0.2%) or Carbendazim + Iprodion (0.2%) along with the sticker @ 0.5ml/L can be recommended.
- Infection of Sooty mould should also be taken care, for its control application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is done.

Banana

- Intensity of Sigatoka leaf spot (*Mycosphaerella sp*) may be moderate.
- For controlling Sigatoka application of Tridomorph (0.1%)/ or Chlorothalonil (0.2%) is recommended.
- Moderate infection of Leaf (*Dieghthonella spp.*), and fruit spots (*Macrophoma spp.*) may be noticed that could be effectively managed by the pre-harvest sprays with Zineb + Hexaconazole (0.2%) or Thiophanate methyl (0.1%).

Papaya

- Black leaf and fruit spots (*Asperisporium caricae*) are attaining serious proportions.
- Application of Thiophanate methyl (0.1%) or Antracol (0.2%) or Carbendazim + Iprodion (0.2%) along with sticker @ 0.5 ml/L are recommended. Lower surface of the leaves to be sprayed properly.

Pomegranate

- On fresh foliage and emerging flower buds infection of anthracnose might be noticed intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose might be noticed.
- 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 can be recommended

Vegetable Crops

- In Solanaceous (tomato, capsicum, chilli) and Cucurbitaceous vegetables (pumpkin, cucumber, ridge gourd etc.) Powdery mildew may appear with cool and dry weather. Hexaconazole at 0.2% spray with 0.5ml sticker/l will reduce the spread and severity. For *Alternaria* leaf spot, Chlorothalonil or Dithane M 45 at 0.2% spray as preventive measure can reduce the disease incidence.
- In places where Tomato has been planted late, with incessant rains late blight due to *Phytophthora* will appear. To prevent spray of Copper Oxy Chloride at 0.2% or Bordeaux mixture 1% is recommended.

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

Period: 16th to 30th September, 2021

Latitude : 13⁰⁷1 N

Longitude : 72⁰²⁹1E

Altitude : 890 M

Fortnight	Temperature (°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			
September 16 to 30, 2021	30.0	19.5	77.9	51.6	3.9	3.2	51.0
	(27.6)	(20.5)	(85.2)	(64.2)	(3.1)	(4.1)	(67.3)

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

Fortnight from 16th to 30th September, 2021

During the second fortnight of the month i.e., from 16th to 30th September, 2021 the mean maximum temperature increased by 1.3⁰C and minimum temperatures decreased by 0.4⁰C as compared to previous fortnight. The mean maximum temperature decreased by 0.8⁰C and minimum temperature increased by 0.3⁰C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in morning decreased by 0.7% and afternoon decreased by 6.4% as compared to the previous fortnight. There was 51 mm rainfall during the fortnight.

Crop weather situation

Rainfall received during this period was less compared the average rainfall of previous 5 years. Day temperatures were higher and relative humidity was lower. Farmers are advised to mulch the orchard soils with available organics to conserve profile soil moisture. Vegetable farmers with standing crops are advised to give one spray of Arka Vegetable Special. Mango farmers may take-up one spray of Arka Mango 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 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 Lambda 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.

Thrips

- Thrips incidence is expected to occur on leaves of newly pruned Bangalore Blue spraying of Fipronil 5 SC @ 1.5ml/L can be recommended.

Vegetable Crops

Fruit Fly on Cucurbits

- For the control of Fruit Fly (*Bactrocera cucurbitae*) an integrated approach may be followed.
- Installation of Cue lure traps @ 10 traps/acre.
- Sanitation (complete destruction of infested fruits at each harvest)
- Bait spray (Imidacloprid 0.1% + 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 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 at pre-flowering stage .Otherwise, spray Neem or Pongamia soaps @ 1 %, thoroughly covering lower surface of leaves.

Ornamental Crops

Thrips on Rose

- Incidence of rose thrips was observed more under polyhouse conditions.
- Spray Acephate 70 WP @ 1 g/l or Imidacloprid 17.8 SL @ 0.5 ml/l for its management.

Whitefly on Gerbera (polyhouses)

- Spray Dinotofuran 20SG @ 1 g/l or Diafenthiuron 500SC@ 1ml/litre followed by Spirotetramat 240 SC @ 1ml/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 September, 2021.

Fruit crops

Grape

- Rust is observed on var Bangalore Blue, for its effective management spray of Chlorothalonil (0.2%)/ Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l is recommended.

Mango

- Infection of Sooty mould should also be taken care, for its control application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is done. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).
- Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) or Thiophanate methyl (0.2%) or Carbendazim (0.1%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

Banana

- Intensity of Sigatoka leaf spot (*Mycosphaerella* sp.), Crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and Anthracnose (*Colletotrichum musae*) of fruits may be increased compared to last fortnight.
- Sigatoka could be managed by spraying Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridomorph (0.1%)/ whereas crown rot and anthracnose can 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 can be practiced.

- *Macrophoma* spots may appear on the fruits of Robusta varieties of Banana. Application of Carbendazim (0.1%) or Thiophanate methyl (0.1%) can be recommended.

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%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control. This will avoid spread of scab disease also.
- Regular spray of Copper oxychloride (0.2%) or Bordeaux mixture (1%) is to be continued to avoid spread of Nodal blight.

Vegetable Crops

Leaf Blight of Tomato and Potato (*Phytophthora infestans*)

- Since the rain fall was heavy in the last fortnight, there is higher spread of late blight. If blight has not started, preventive spray of Chlorothalonil or Copper oxy chloride at 0.2% is recommended. In case of severe infection, spray of Fenamidone + Dithane M 45 (Sectin) at 0.1% is recommended.

Powdery mildew in Solanaceous Vegetable crops

- Spray of Wettable sulphur or Dithane M 45 after the appearance of the powdery mildew symptoms. In case of severe infection Hexaconazole at 0.1% is recommended

Ornamental Crops

Rose

- Incidence of Powdery mildew is expected to increase.
- In case of severe infection Hexaconazole 0.1% or Azoxystrobin 0.1% can reduce the disease spread

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

Period: 1st to 15th October, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (°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			
October 1 to 15, 2021	29.3	20.1	82.1	58.7	3.6	1.74	186.6
	(29.3)	(20.3)	(85.5)	(62.9)	(3.9)	(2.8)	(110.5)

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

Fortnight from 1st to 15th October, 2021

During the first fortnight of the month i.e., from 1st to 15th October, 2021 the mean maximum temperature decreased by 0.7^oC and minimum temperature increased by 0.6^oC as compared to previous fortnight. The mean maximum temperature increased by 1.7^oC and minimum temperature decreased by 0.2^oC as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in both morning and afternoon increased by 4.2% and 7.1% as compared to the previous fortnight. There was 186.6 mm rainfall during the fortnight.

Crop weather situation

Compared to the average values of last five years weather data, there was not much difference in the day temperatures, relative humidity and evaporation rate. But the rainfall received was about 75 mm higher than the average rain received during the last 5 years. Some of the vegetable and fruit crops fields might have been flooded. Farmers are advised to drain out excess water. Fertilizer application if it is to be carried out in any crop, farmers are advised to first drain out excess water, wait for a day for the profile to come to condition and then apply the fertilizers. First spray of mango special may be given to mango.

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 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*.

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 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.
- Spray Fipronil 5SC @ 1.5ml/L or *Metarhizium* formulations can be recommended.

Vegetable Crops

Fruit Fly on Cucurbits

- For the control of Fruit Fly (*Bactrocera cucurbitae*) an integrated approach may be followed.
- Installation of 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.

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 14.5SC @ 0.75 ml/L or Thiodicarb 75WP @ 1 g/L.

Leaf Hopper on Okra/Bhendi

- Incidence of jassids is observed on okra, spray Imidacloprid 17.8 SL @ 0.3 ml/l at pre-flowering stage .Otherwise, spray Neem or Pongamia soaps @ 1 %, thoroughly covering lower surface of leaves.

Ornamental Crops

Thrips on Rose

- Incidence of rose thrips was observed more under polyhouse conditions.
- Spray Acepthate 70 SP @ 1 g/l or Imidacloprid 17.8 SL @ 0.5 ml/l for its management.

Disease Scenario

Disease forecast and management practices based on weather parameters during the first fortnight of October, 2021.

Fruit crops

Banana

- Intensity of Sigatoka leaf spot (*Mycosphaerella* sp.), Crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and Anthracnose (*Colletotrichum musae*) of fruits may be increased compared to last fortnight.
- Sigatoka could be managed by spraying Propiconazole (0.1%) or Thiophanate methyl (0.1%) or Tridomorph (0.1%)/ whereas crown rot and anthracnose can be controlled by the post-harvest dip in Chlorine water (300 ppm) for 10 minutes.
- *Macrophoma* spots may appear on the fruits of Robusta varieties of Banana. Application of Carbendazim (0.1%) or Thiophanate methyl (0.1%) can be recommended.

Grape

- 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 Mancozeb (2%) along with sticker @ 0.5 ml/ l.

Mango

- Infection of Sooty mould should also be taken care, for its control application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is done. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).
- Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

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%) along with the sticker @ 0.5ml/l is effective for the disease control. This will avoid spread of scab disease also.
- Regular spray of Copper oxychloride (0.2%) or Bordeaux mixture (1%) is to be continued to avoid spread of Nodal blight.

Vegetable Crops

Leaf Blight of Tomato and Potato (*Phytophthora infestans*)

- Spread of late blight is expected to continue. If blight has not started, preventive spray of Chlorothalonil or Copper oxy chloride at 0.2% is recommended. In case of severe infection, spray of Fenamidone + Dithane M 45 (Sectin) at 0.1% is recommended.

Powdery mildew in Solanaceous Vegetable crops

- Spray of Wettable sulphur or Dithane M 45 after the appearance of the powdery mildew symptoms. In case of severe infection Hexaconazole at 0.1% is recommended

Ornamental Crops

Rose

- Incidence of Powdery mildew is expected to increase.
- In case of severe infection Hexaconazole 0.1% or Azoxystrobin 0.1% can 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 31st October, 2021

Latitude : 13⁰7¹ N

Longitude : 72⁰29¹E

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			
October 16 to 31, 2021	29.1	19.0	77.1	60.3	3.8	2.0	80.6
	(27.9)	(18.1)	(76.6)	(56.2)	(3.6)	(2.5)	(46.5)

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

Fortnight from 16th to 31st October, 2021

During the second fortnight of the month i.e., from 16th to 31st October, 2021 the mean maximum temperature and minimum temperatures decreased by 0.2⁰C and 1.1⁰C respectively as compared to previous fortnight. The mean maximum and minimum temperatures decreased by 1.4⁰C and 2.2⁰C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in morning decreased by 5% and afternoon increased by 1.6 % as compared to the previous fortnight. There was 80.6 mm rainfall during the fortnight.

Crop weather situation

The rainfall was high (34 mm more) during this fortnight. Since this might have resulted in loss of Nitrogen by leaching. Some vegetables requires more nitrogen hence for supply of 20% of N, top dressing is recommended. Mango needs depletion of profile moisture for flowering, so the irrigation needs to be stopped for mango.

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 eating caterpillars and weevils

- Spray Quinalphos 25 EC @ 2 ml/l or Lambda Cyhalothrin 5EC @ 1ml /l for their management.

Grapes

- 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 can be recommended.

Vegetable Crops

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.

Mite on Tomato

- Incidence of spider mites is noticed in some Tomato fields.
- For control of mites, spraying Spiromesifen 22.9 SC 0.5ml/L is recommended.

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.

Epilachna beetle on Brinjal

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

Ornamental Crops

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.

Disease Scenario

Disease forecast and management practices based on weather parameters during the second fortnight of October, 2021.

Fruit crops

Grape

- 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 Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

Mango

- Infection of Sooty mould should also be taken care, for its control application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is done. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).
- Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) or Thiophanate methyl (0.2%) or Carbendazim (0.1%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

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%) % / Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control. This will avoid spread of scab disease also.
- Regular spray of Copper oxychloride (0.2%) or Bordeaux mixture (1%) is to be continued to avoid spread of Nodal blight.

Vegetable Crops

Expected Disease Incidence in Vegetable Crops

- There has been a dry spell and there are chances for viral diseases transmitted by sucking pests like thrips and aphids. Care should be taken to prevent their population by applying

the Neem based formulations as per the requirement and crop stage in all crops where vector borne viral disease are expected.

Leaf Blight of Tomato and Potato (*Phytophthora infestans*)

- If blight has not started, preventive spray of Chlorothalonil or Copper oxy chloride at 0.2% is recommended. If there are drizzling due to the depression in east coast followed by rain fall the severity of leaf blight may increase.
- In case of severe infection, spray of Fenamidone + Mancozeb at 0.2% is recommended.
- The water logging has to be avoided to prevent humidity build up. Use of polythene mulch will reduce the secondary spread of the disease through rain flash.

Powdery mildew in Solanaceous Vegetable crops

- As the minimum temperature has come down and there is cool and dry weather, the powdery mildew will increase.
- Spray of Wettable sulphur or Mancozeb at 0.2% after the appearance of the powdery mildew symptoms. In case of severe infection Hexaconazole at 0.1% is recommended

Ornamental Crops

Rose

- Incidence of Powdery mildew is expected to increase.
- In case of severe infection Hexaconazole 0.1% or Azoxystrobin 0.1% can reduce the disease spread

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

Period: 1st to 15th November, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (°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			
November 1 to 15, 2021	25.8	18.9	87.7	67.5	2.0	2.3	94.2
	(27.8)	(17.2)	(79.7)	(52.3)	(3.7)	(2.1)	(7.7)

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

Fortnight from 1st to 15th November, 2021

During the first fortnight of the month i.e., from 1st to 15th November, 2021 the mean maximum temperature and minimum temperatures decreased by 3.3^oC and 0.1^oC respectively as compared to previous fortnight. The mean maximum and minimum temperatures decreased by 0.1^oC and 0.9^oC 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 10.6% and 7.2 % as compared to the previous fortnight. There was 94.2 mm rainfall during the fortnight.

Crop weather situation

As the rainfall recorded was almost more than ten times of the average of previous years, there will be excess soil moisture everywhere and water stagnation may also be there. It is very important to drain out excess water from the basins of all fruit crops especially in case of papaya as it is very sensitive to water stagnation. Proper staking for all the fruits and vegetables crops is required as heavy rains might have affected them. Nutrient sprays like banana special for banana and vegetable special for vegetables maybe done as heavy rains might have leached all the nutrients.

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

Grapes

- Thrips, *Scirtothrips dorsalis* is expected to occur on leaves of newly pruned Bangalore Blue.
- Spraying of Fipronil 5 SC @ 1.5ml/L or *Metarhizium* formulations can be recommended.

Vegetable Crops

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

Mite on Tomato

- Incidence of spider mites is noticed in some tomato fields.
- For control of mites, spraying *Spiromesifen 22.9 SC 0.5ml/L is recommended.

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.

Aphids on Beans

- For management of aphids, spray Imidacloprid 200SL @ 0.5 ml/l for their management.

Ornamental Crops

Aphid on Rose

- Aphid infestation may increase on rose.
- Spray Imidacloprid 200 SL @ 0.5 ml/l for its management.

Helicoverpa on China Asters

- Incidence of *Helicoverpa* may increase on China Asters.
- Spraying of Indoxacarb 14.5 EC @ 0.75 ml/l for its control can be recommended.

Disease Scenario

Disease forecast and management practices based on weather parameters during the first fortnight of November, 2021.

Fruit crops

Grape

- 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.

Mango

- Powdery mildew requires attention, at this point of time the application of Wettable Sulphur (0.2%) along with sticker @ 0.5 ml/L can recommended
- Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) or along with sticker (@ 0.5 ml / L) is recommended for the disease management.

Banana

- Sigatoka leaf spot (*Mycosphaerella* sp.) and Anthracnose (*Colletotrichum musae*) of fruits require proper attention.
- Sigatoka could be managed by spraying Propiconazole at 0.1% whereas Crown rot and Anthracnose could be controlled by the pre-harvest sprays involving Benzimidazole group of fungicides (0.1%).

Papaya

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

Vegetable Crops

Solanaceous and Cucurbits Vegetables

- Powdery mildew requires attention. At this point of time application of wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended.
- Leaf spots 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

Ornamental Crops

Chrysanthemum

- Spraying of Chlorothalonil (2g/l) as contact fungicide can reduce the incidence of rust
- In severe cases, Propiconazole (1.5 ml/l) will help in preventing the further spread of the disease

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

Period: 16th to 30th November, 2021

Latitude : 13⁰⁷1 N

Longitude : 72⁰²⁹1E

Altitude : 890 M

Fortnight	Temperature (°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			
November 16 to 30, 2021	26.8	19.2	85.7	65.8	2.6	2.5	216.8
	(27.1)	(17.4)	(81.5)	(54.4)	(3.7)	(2.8)	(6.8)

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

Fortnight from 16th to 30th November, 2021

During the second fortnight of the month i.e., from 16th to 30th November, 2021 the mean maximum temperature and minimum temperatures increased by 1⁰C and 0.3⁰C as compared to previous fortnight. The mean maximum temperature increased by 0.7⁰C and minimum temperature decreased by 0.2⁰C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon decreased by 2% and 1.7% as compared to the previous fortnight. There was 216.8 mm rainfall during the fortnight.

Crop weather situation

The fortnight received very good rains and remained wet for most of the time. For mango farmers, are advised to spray IIHR Mango special first spray during this fortnight. 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, 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

- Wherever flowering 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 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.

Vegetable Crops

Cabbage Diamond back moth:

- 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 interval will be effective starting from 20 days after planting till 60-70DAT.

Tomato fruit borer:

- With the prevailing weather, incidence of tomato fruit borer may increase on tomato.
- Spray *HaNPV* @ 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 chillies:

- 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 forecast and management practices based on weather parameters during the second fortnight of November, 2021.

Fruit crops

Grape

- Downy mildew and anthracnose needs 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%) can be recommended
- To control of anthracnose, spraying of Propineb (0.2%)/ Chlorothalonil (0.2%) are effective measures.

Mango

- Powdery mildew requires attention, application of Wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended.
- Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

Banana

- Sigatoka leaf spot (*Mycosphaerella* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) of fruits require proper attention.
- Sigatoka could be managed by spraying Propiconazole (0.1%)/ whereas crown rot and anthracnose could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%).

Papaya

- Increasing in the infection of Black spot (*Asperisporium caricae*) is observed.
- 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 and cucurbits vegetables

- Powdery mildew requires attention. At this point of time application of wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended. Later, if incidence is in serious proportion spraying of Hexaconazole at 0.1% will reduce the spread.
- 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.

Ornamental Crops

Chrysanthemum

- This is the time for rust and spraying Chlorothalonil (2g/l) or Propiconazole (1 ml/l) as contact fungicide will reduce the incidence.

- In severe cases Propiconazole (1.5 ml/l) will help in preventing the further spread of the disease.

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

Period: 1st to 15th December, 2021

Latitude : 13^o7¹ N

Longitude : 72^o29¹E

Altitude : 890 M

Fortnight	Temperature (°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) 2021	27.7	17.5	83.6	57.7	2.4	2.3	42.5
	(26.5)	(16.9)	(82.9)	(57.6)	(2.9)	(3.7)	(19.5)

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

Fortnight from 1st to 15th December, 2021

During the first fortnight of the month i.e., from 1st to 15th December, 2021 the mean maximum temperature increased by 0.9^oC and minimum temperatures decreased by 1.7^oC as compared to previous fortnight. The mean maximum and minimum temperature decreased by 0.6^oC and 0.5^oC as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon decreased by 2.1% and 8.1% as compared to the previous fortnight. There was 42.5 mm rainfall during the fortnight.

Crop weather situation

The mean maximum and minimum temperatures showed only marginal difference when compared to the previous five years. Similar trend was noticed w.r.t relative humidity. However, the total rainfall received was twice higher when compared to the previous five years. The nutrients requiring split application through soil may be applied as the soil conditions are favourable for nutrient absorption. Need based foliar of micronutrients application 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

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 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.

Vegetable Crops

Tomato fruit borer:

- With the prevailing weather, incidence of tomato fruit borer may increase on tomato.
- Spray *HaNPV* @ 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 chillies:

- 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 and management practices based on weather parameters during the first fortnight of December, 2021

Fruit crops

Grape

- Downy mildew and anthracnose needs to be monitored.
- For the management of downy mildew, application of Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%)/ Dimethomorph (0.8%) + Mancozeb (0.2%) can be recommended
- To control of anthracnose, spraying of Propineb (0.2%)/ Chlorothalonil (0.2%) are effective measures.

Mango

- Powdery mildew requires attention, application of Wettable sulphur (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.
- Application of Chlorothalonil (0.2%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

Banana

- Sigatoka leaf spot (*Mycosphaerella* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) of fruits require proper attention.

Papaya

- Increasing in the infection of Black spot (*Asperisporium caricae*) is 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 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.

Vegetable Crops

Solanaceous vegetables

- Powdery mildew requires attention. At this point of time, application of wettable sulphur (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.

Cucurbitaceous vegetable

- 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.

Ornamental Crops

Chrysanthemum

- This is the time for rust and spraying Chlorothalonil (2g/l) will prevent the disease incidence. While, spray of Propiconazole (0.1%) will help as 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, 2021

Latitude : 13⁰7¹ N

Longitude : 72⁰29¹E

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	27.7	11.9	73.4	44.4	3.0	1.9	0.00
	(27.8)	(15.0)	(82.3)	(49.0)	(3.8)	(3.3)	(0.0)

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

Fortnight from 16th to 31st December, 2021

During the second fortnight of the month i.e., from 16th to 31st December, 2021 the mean maximum temperature remained same and minimum temperatures decreased by 5.6⁰C as compared to previous fortnight. The mean maximum temperatures increased by 1.3⁰C and mean minimum temperatures decreased by 1.9⁰C as compared to the mean values of the corresponding period for the previous five years. The percent relative humidity in morning and afternoon decreased by 10.2% and 13.3% as compared to the previous fortnight. There was no rainfall during the fortnight.

Crop weather situation

During second fortnight of December 2021 mean minimum temperatures are very low compared to the average value of previous 5 years. There was no rainfall during the entire period. Therefore one needs to take care of irrigation for standing vegetable and fruit crops. Mulching at the base of the standing fruit crops to reduce evaporation losses may be done. Choking of banana can be prevented by application of more potassium and proper mulching during chill winter days.

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 3000 ppm @ 2 ml/l, if the hopper population is low to moderate.
- If the number exceeds 4 per panicle spray Imidacloprid 17.8 SL 200 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.

Vegetable Crops

Tomato fruit borer:

- With the prevailing weather, incidence of Tomato fruit borer may increase on tomato.
- Spray *HaNPV* @ 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 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 and management practices based on weather parameters during the second fortnight of December, 2021

Fruit crops

Banana

- Sigatoka leaf spot (*Mycosphaerella* 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 with Thiophanate methyl (0.1%)

Grape

- Incidence of Anthracnose and Powdery mildew infection are supposed to increase may be noticed.
- For the management of anthracnose, application of Chlorothalonil (0.2%) or Tebuconazole (0.1%) can be recommended.
- To control powdery mildew, spraying of Tebuconazole or Hexaconazole at 0.1% along with sticker @ 0.5 ml/ l is recommended for the management of disease.

Mango

- Powdery mildew requires attention, application of Wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended.
- Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) along with sticker (@ 0.5 ml / L) is recommended to prevent disease.
- Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended.

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 and anthracnose of fruit and leaf 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

Solanaceous Vegetables

- Powdery mildew is observed on Solanaceous vegetable crops. To control the disease Spraying of Wettable Sulphur or Tebuconazole at 0.2% at the beginning of the infection with sticker at 0.5ml per l of spray liquid with good coverage of the lower surface o the leaves is recommended.

Tomato

- Powdery mildew is the major problem in Tomato crop. Spray Hexaconazole or Tebuconazole 0.2% at the begging of the infection with sticker as mentioned earlier.

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 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 parvispissus 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.

Ornamental Crops

Rose

- Powdery mildew of Rose can be managed by spraying with Azoxystrobin at 0.05% with sticker as mentioned above.
- Black spot of Rose can be managed by spraying Mancozeb 0.2% at the initial stages and if infection is severe at later stages application of Trifloxystrobin + Tebuconazole (0.1%) or Propiconazole (0.1%) can be recommended.

Betel vine

- Powdery Mildew of Betel Vine can be managed by the application of Wettable sulphur at 0.2%.
- Spraying of systemic fungicides not recommended. Maintenance of good aeration and proper drainage are important