



**POPULATION DYNAMICS  
OF WHITEFLY IN PUNJAB**

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# Population Dynamics

Will be different in

## Multi-Cropping Communities

- **More than one host-crop is grown in significant acreage within the same community.**

## Mono-Cropping Communities

- **Cotton is the dominant WF host crop grown in a crop community.**

43 species of whitefly are reported in Punjab

# REASONS OF PEST FLARE UP

## Favorable host plant

- Excessive Nitrogen use to crops makes the plants vulnerable to pests.
- The myth that GMO crops reduce pesticides use is not true.

## Adverse effect of pesticides

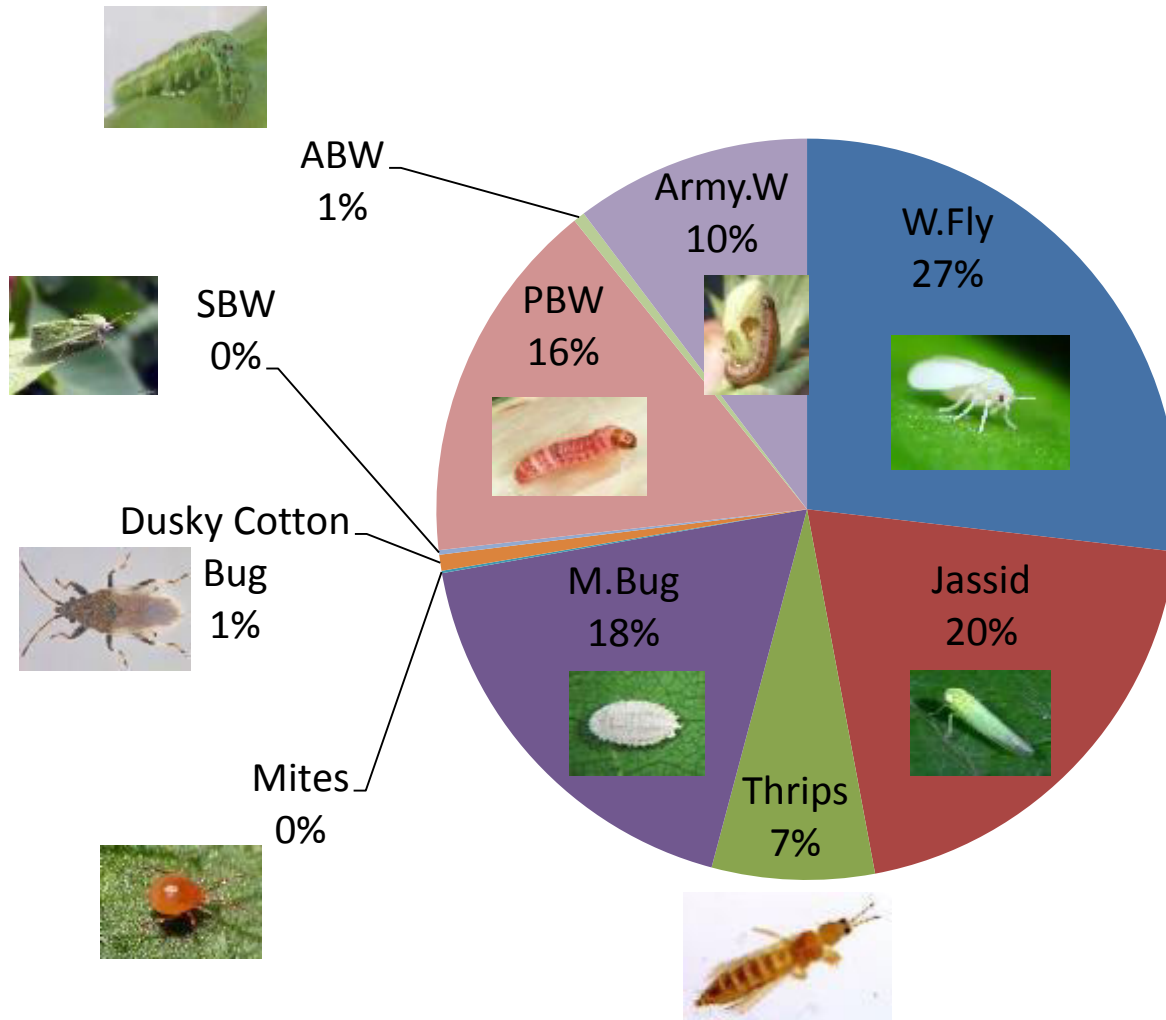
- Emergence of resistance in pests by spraying of pesticides
- Poor efficacy of Pesticides
- Poor application Technique
- Improper time of application
- Killing of friendly species which control pests and disruption pest-predator balance

# Cont.

## Favorable Climatic Conditions

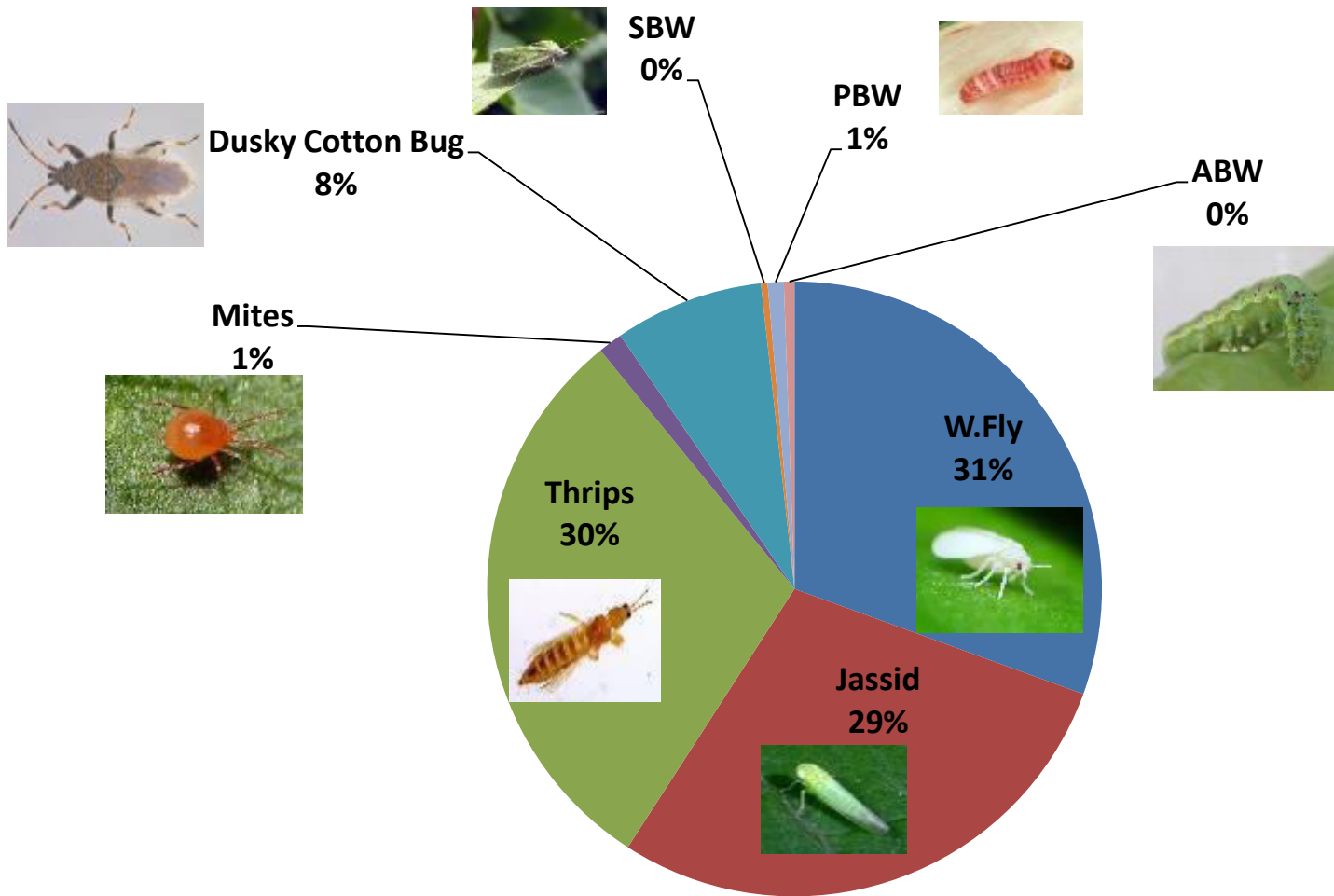
- **Whitefly flourishes best in hot dry climate with optimum average temperature 35<sup>0</sup>C with relative humidity below 50%.**
- **Lowest threshold Temp. 10<sup>0</sup>C & Generation time (Egg to Adult is 316 DD (C)**

# ABOVE ETL SPOTS OF ALL COTTON PESTS 2016

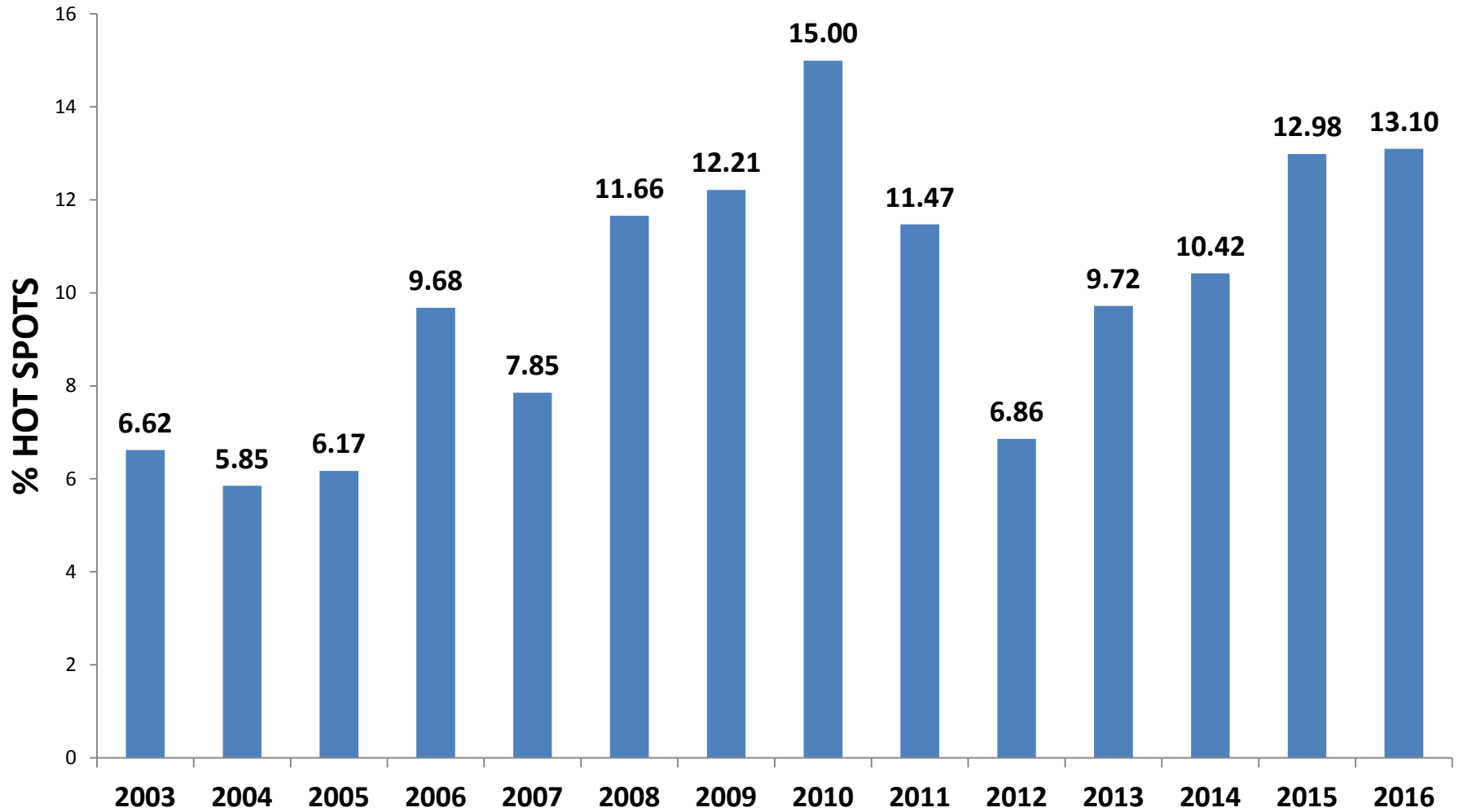


TOTAL SPOTS VISITED = 51000 & TOTAL HOT SPOTS OBSERVED = 24904 Source: PW&QCP

# BELOW ETL SPOTS OF ALL COTTON PESTS 2016

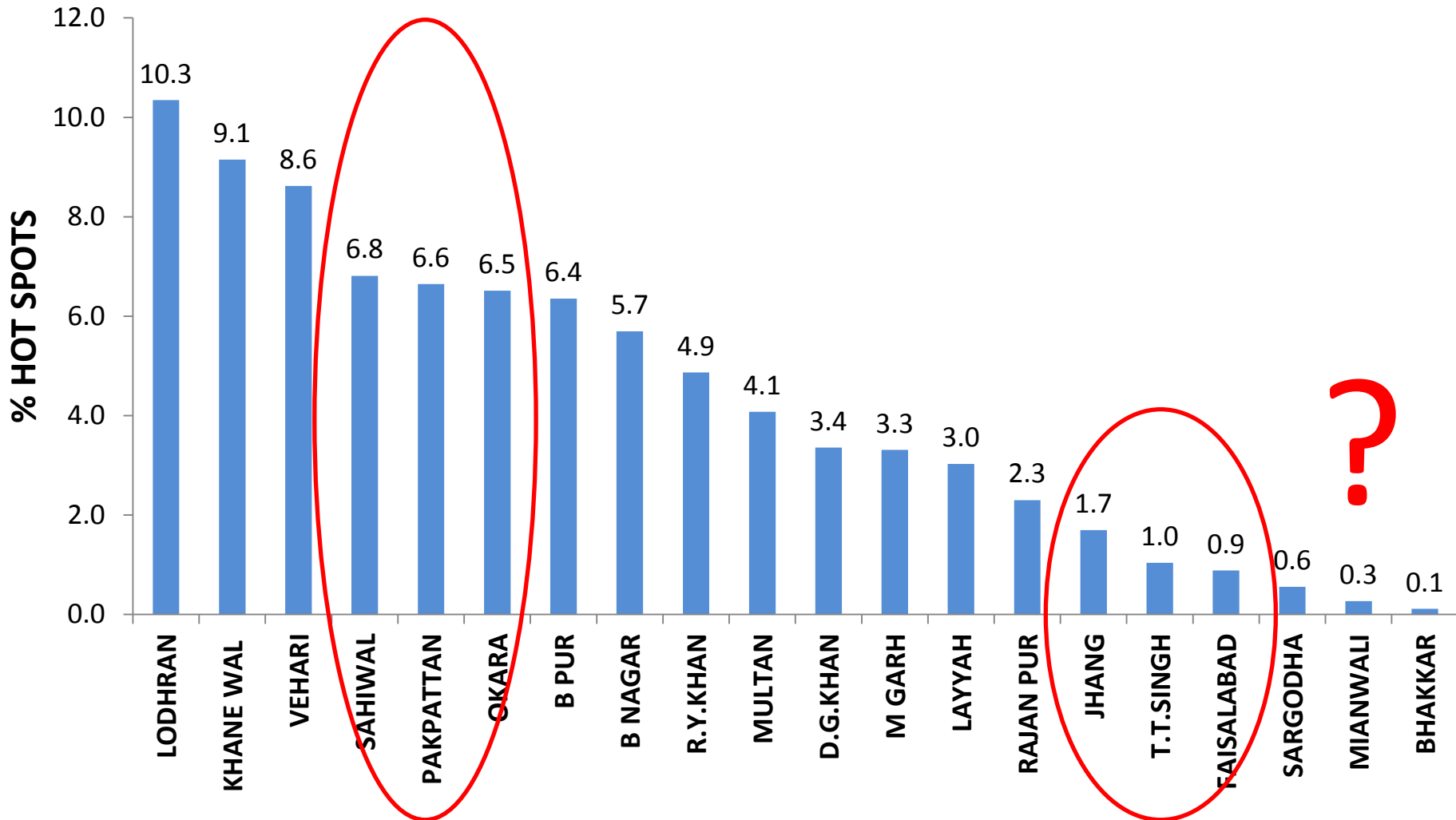


# POPULATION DYNAMICS OF WHITEFLY 2003 TO 2016



Source: PW&QCP

# DISTRICT WISE POPULATION DYNAMICS OF WHITEFLY 2016

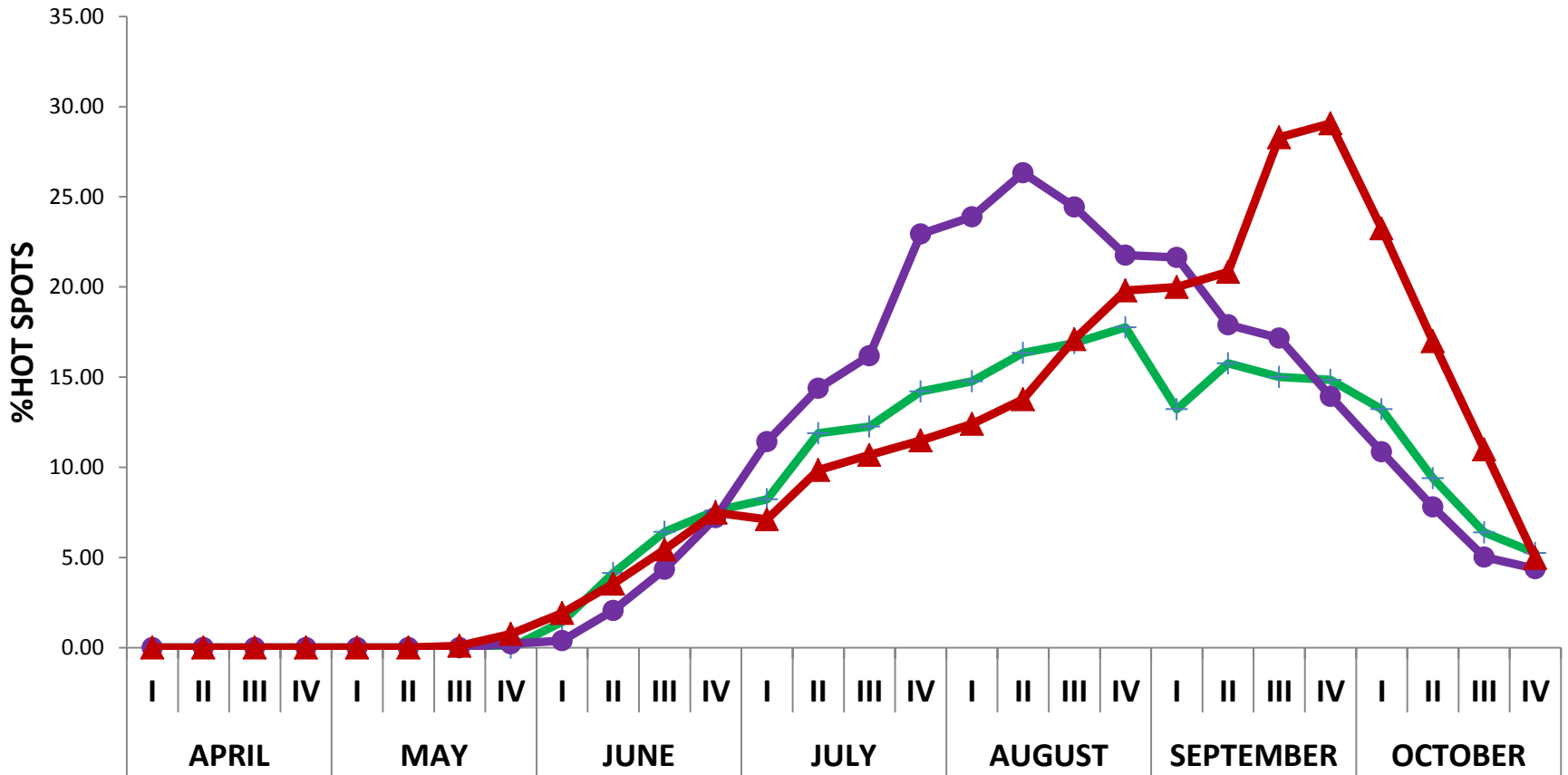


Source: PW&QCP



# COMPARISON OF % HOT SPOTS OF WHITEFLY 2014, 2015 & 2016

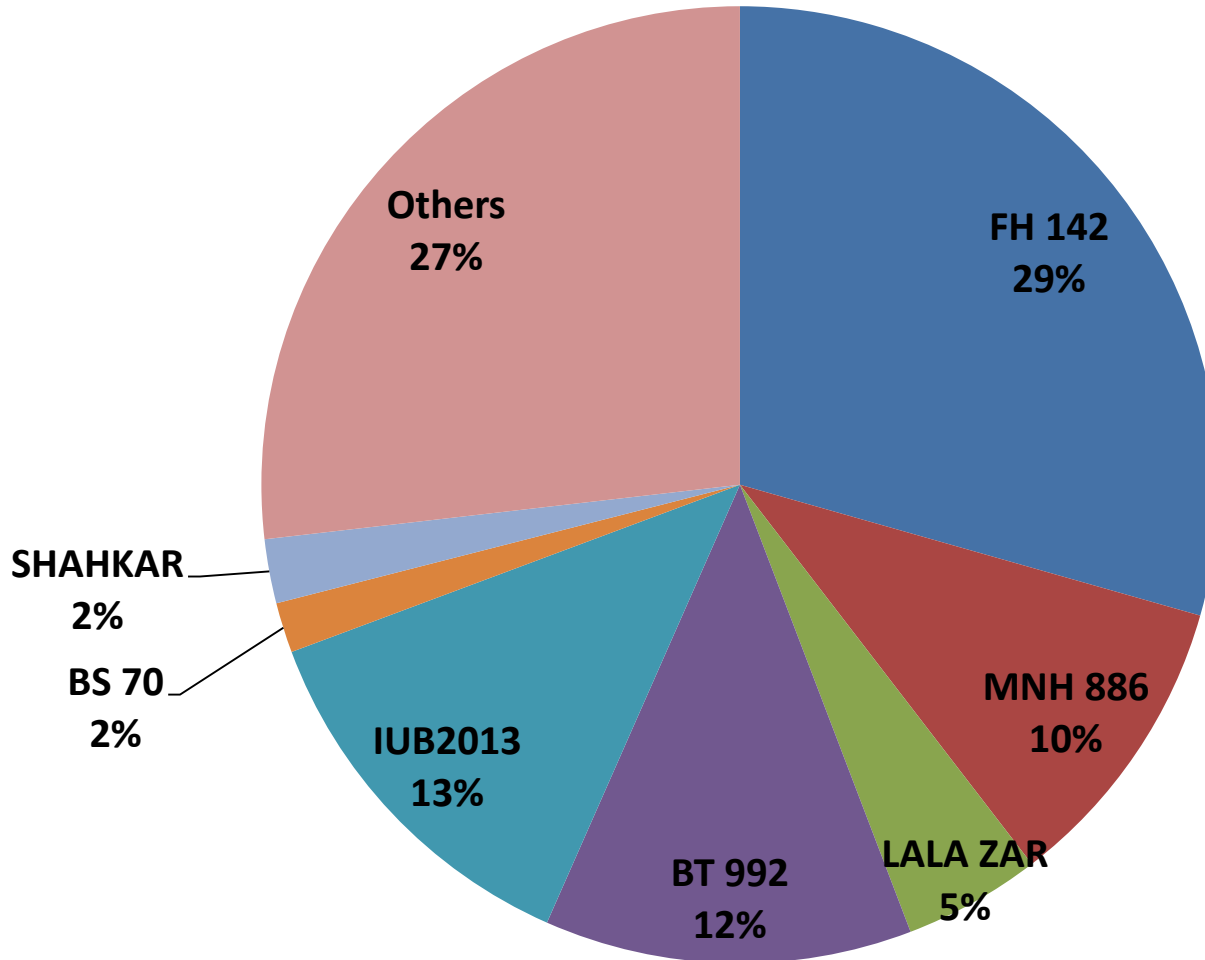
% HOT SPOTS OF WHITEFLY 2014, 2015 & 2016



Source: PW&QCP

—+— 2014    —●— 2015    —▲— 2016

# VARIETAL RESPONSE TO WHITEFLY



Source: PW&QCP

# DISTRIBUTION & DAMAGE (DD) OF WHITEFLY

## Vertically Distributed Phenological Stages

Eggs and  
Adults

2<sup>nd</sup> & 3<sup>rd</sup>  
Nymphal  
Instar

4<sup>th</sup> Instar &  
Pseudo  
Pupae



### SYMPTOMS OF DAMAGE

- Upward curling of leaves.
- Reduced plant vigour.
- Lint contamination with honey dew.
- Transmission of leaf curl virus disease.

# NATURE OF DAMAGE

Sucking the sap



Excreting honey dew on which sooty mould grows.



Through transmission of leaf curl virus disease



# Host Range



## **Crops**

- Cotton, Maize, Sunflower, Pulses,

## **Vegetables**

- Melons, Potato, Okra, Eggplant, Cauliflower, Cabbage, Tomato, Cucurbits, Peppers,

## **Fruit:**

- Citrus, Litchi, Pomegranate, Ber, Mulberry, Papaya













## **Weeds**

- Gardenia, Mako, Maina, Karund  
Lehli, Puth Kanda

# PESTICIDES USED FOR CONTROL OF JASSID & WHITEFLY IN COTTON CROP

S #	Generic Name	Whitefly	Jassid
1	Imidacloprid 20% SL		
2	Imidacloprid 25% WP		
3	Acetamiprid 20% SP		
4	Acetamiprid 20% SL		
5	Buprofezin 25% WP		
6	Pyriproxyfen 10.8% EC		
7	Imidacloprid+Acetamiprid 20.2% SL		
8	Diafenthiuron 50% SC		

# PESTICIDES USED FOR CONTROL OF JASSID & WHITEFLY IN COTTON CROP

S #	Generic Name	Whitefly	Jassid
9	Imidacloprid+Pyriproxyfen 10% SC		
10	Acetamiprid+Pyriproxyfen 41.6% EC		
11	Buprofezin+Nitenpyram 70% WP		
12	Spirotetramate 24% SC		
13	Abamectin+Imidacloprid 5% EC		
14	Nitenpyram 10% AS		
15	Nitenpyram 50% WDG		
16	Abamectin+Nitenpyram 30% WDG		

# THANKS

