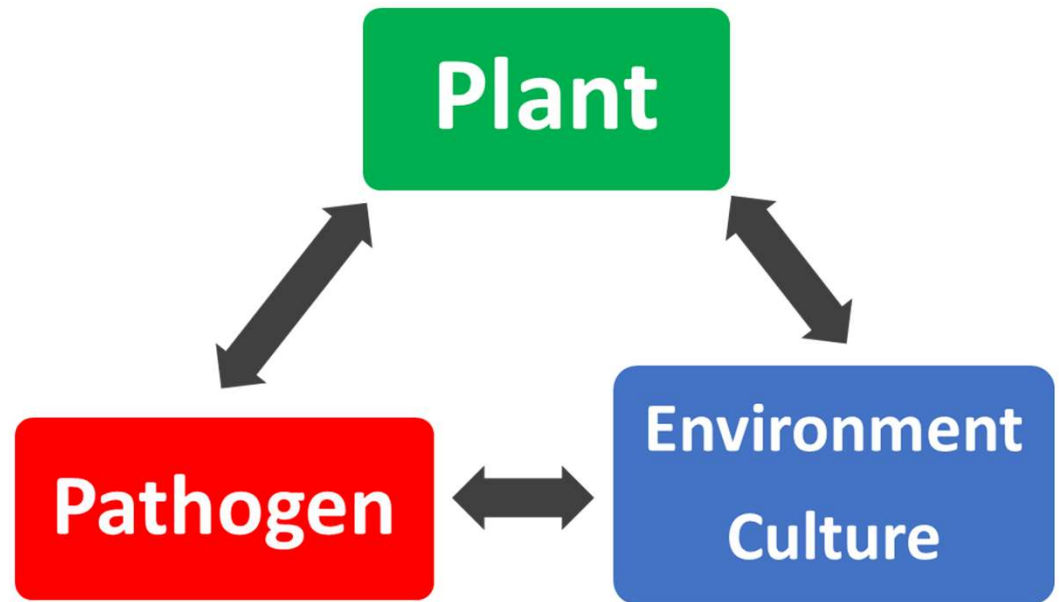


## Risk Management: Understanding and Minimizing Crop Failure

- Use only tested seed & URC
- Clean production facility
- Optimum cultural protocols
- “Right chemical-right time”
- Monitor and control pests



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# At Risk Crops: Zinnia

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# Zinnia elegans

## Risk Factors

- **Bacterial leaf spot** (*Xanthomonas campestris* pv. *zinniae*)
  - Irregular, interveinal black necrotic spots with distinct yellow halo around necrotic spots
  - Reddish circular spots on petals
- **Fungal leaf spot** (*Alternaria zinniae*)
  - Red to purple leaf spots that may cross over the veins without a yellow halo. Over time the center turns gray-tan and falls out
  - Dark brown stem lesions near soil in severe cases
- **Powdery Mildew** (*Golovinomyces cichoracearum*)
  - White to gray fluffy irregular spots on top of leaves, all around the stem and on all flower parts

*Xanthomonas campestris* pv. *zinniae*



*Alternaria zinniae*



Powdery mildew



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# *Zinnia elegans*

## Managing the Risk

- Use treated and tested seed
- Begin spray programs when cotyledons unfold
- Avoid overhead watering and wet foliage
- Limit the amount of NH4 to increase plant tone

	Xanthamonas	Alternaria	Powdery Mildew
BadgeX2	G	G	
Broadform			EXC
Cease	S/VG		
Compass O		G/EXC	EXC
Daconil		VG/EXC	VG
Eagle 20EW		G/EXC	EXC
EcoSwing	N/EXC		EXC
Heritage		G/EXC	
Medallion		EXC	
Orkestra		EXC	EXC
Pagaent		EXC	
Phyton 27/35	VG/EXC	F/EXC	
Stargus	G	G	
Torque		VG/EXC	EXC
Triathlon BA	VG/EXC		

Key	
EXC	Excellent
VG	Very Good
G	Good
F	Fair
S	Some
N	None

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# At Risk Crops: Zinnia

For more resources:

<https://www.ballseed.com/QuickCulture/ProductionGuides/>

Tech On Demand Podcast:

<https://www.growertalks.com/TechOnDemand/>

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