

Effective Treatments for Basil Downy Mildew

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Effective Treatments for Basil Downy Mildew

- **Downy Mildew of Basil:
A New Disease in Illinois**

Basil Production in Illinois

- ~ 500 acres in Momence, IL
- ~ 50 acres by other growers
- Total acreage in Illinois: **~550 acres**
- Annual harvest: ≥ 5 times
- Crop value (gross):
\$10,000 - > \$30,000/A

Downy Mildew of Basil

- 1933, reported in Uganda (Africa)
- 2001, Switzerland; 2003, Italy;
2004, Belgium and France
- 2007, Florida; 2008, several state in the US
- 2009, Illinois and many other states
- Pathogen: *Peronospora belbahrii*
- Pathogen spread: by wind, seed, plant material
- Wet, cool conditions favor the disease

Downy Mildew of Basil

➤ Symptoms:

- ❖ Leaf spot and foliar blight



Downy mildew of basil



Downy mildew of basil on leaves



**Pathogen of downy mildew of basil
(sporangiophore and sporangia)**

Downy Mildew of Basil

➤ Management: Cultural and Chemical

❖ Cultural management

- Use uncontaminated seed
- Use less susceptible cultivars [commonly grown sweet basil (*Ocimum basilicum*) is more susceptible than the other basil species]

Colored basils are less susceptible

- Minimize leaf wetness
- Minimize relative humidity

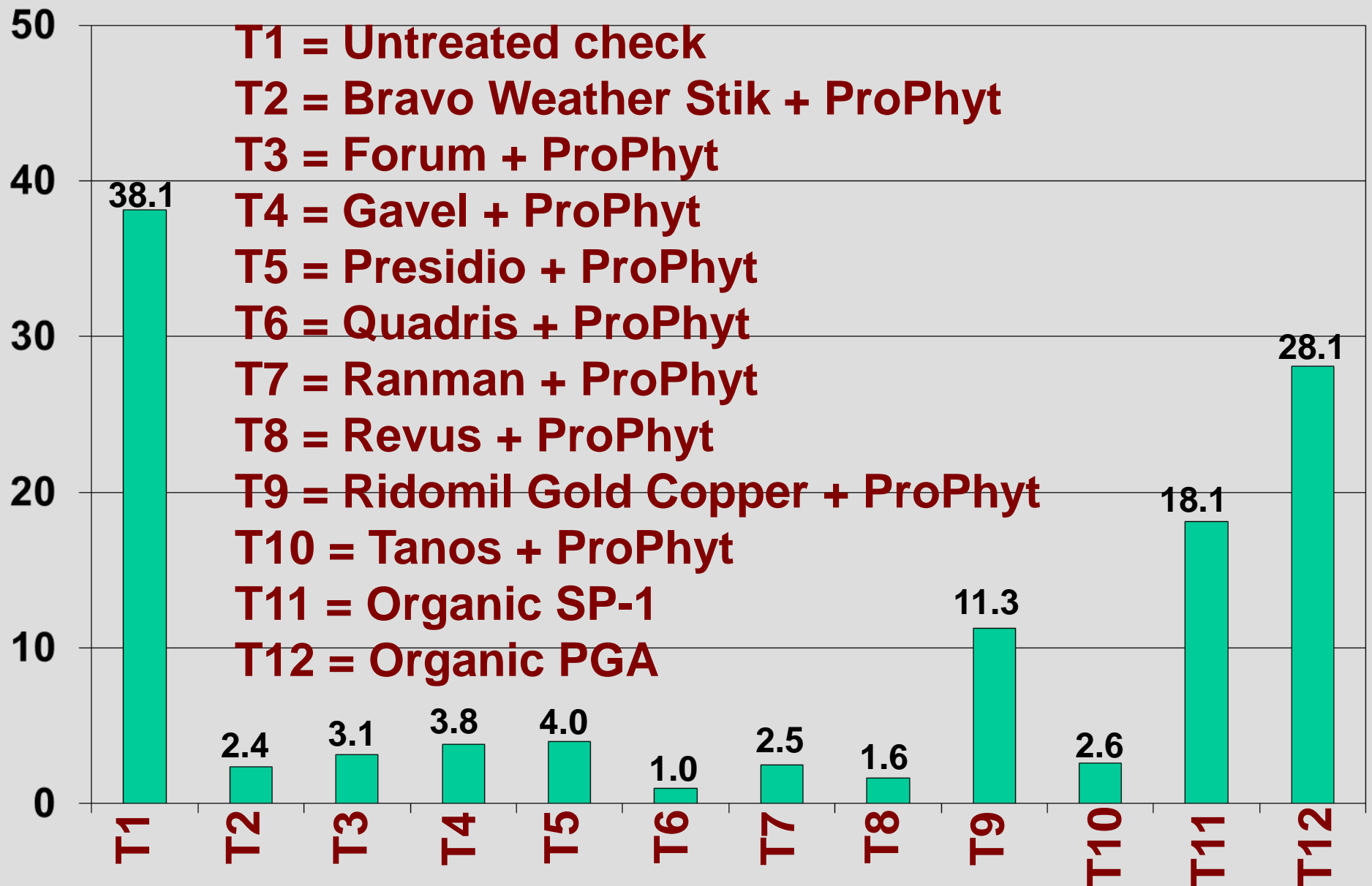
Downy Mildew of Basil

➤ Management: Cultural and Chemical

❖ Chemical control:

- Organic production: Oxidate, Coppers, ActinovateAG (*Streptomyces lydicus*)
- Commercial production (non-organic):
 - ✓ Labeled: OxiDate, ProPhyt, and K-Phite, Quadris
 - ✓ Not labeled, but effective: Revus, Presidio, Ranman, Forum, Tanos, Gavel, Ridomil Gold, Chlorothalonil
 - ✓ See following slide for the results in Illinois

Downy mildew severity on leaves (%)



Treatments for basil downy mildew in Illinois in 2009

Downy Mildew of Basil – 2010 Studies

- **Section 18: two section 18 permits**
 - ❖ **Mandipropamid (Revus 2.08SC)**
 - ❖ **Cyazofamid (Ranman 400SC)**
- **Experiment: an Experiment with 31 Treatments**
 - ❖ **22 Conventional Treatments**
 - ❖ **9 Organic Treatments**

Conventional Treatments

No.	Treatment
1	No Treatment
2	Bravo Weather Stik + 0.125% (v:v) Induce
3	ProPhyt + 0.125% (v:v) Induce
4	Bravo Weather Stik + ProPhyt + 0.125% (v:v) Induce
5	Bravo Weather Stik + ProPhyt
6	Forum + 0.125% (v:v) Induce
7	Forum + ProPhyt + 0.125% (v:v) Induce
8	Gavel + 0.125% (v:v) Induce
9	Gavel + ProPhyt + 0.125% (v:v) Induce
10	Presidio + 0.125% (v:v) Induce
11	Presidio + ProPhyt + 0.125% (v:v) Induce
12	Quadris + 0.125% (v:v) Induce
13	Quadris + ProPhyt + 0.125% (v:v) Induce

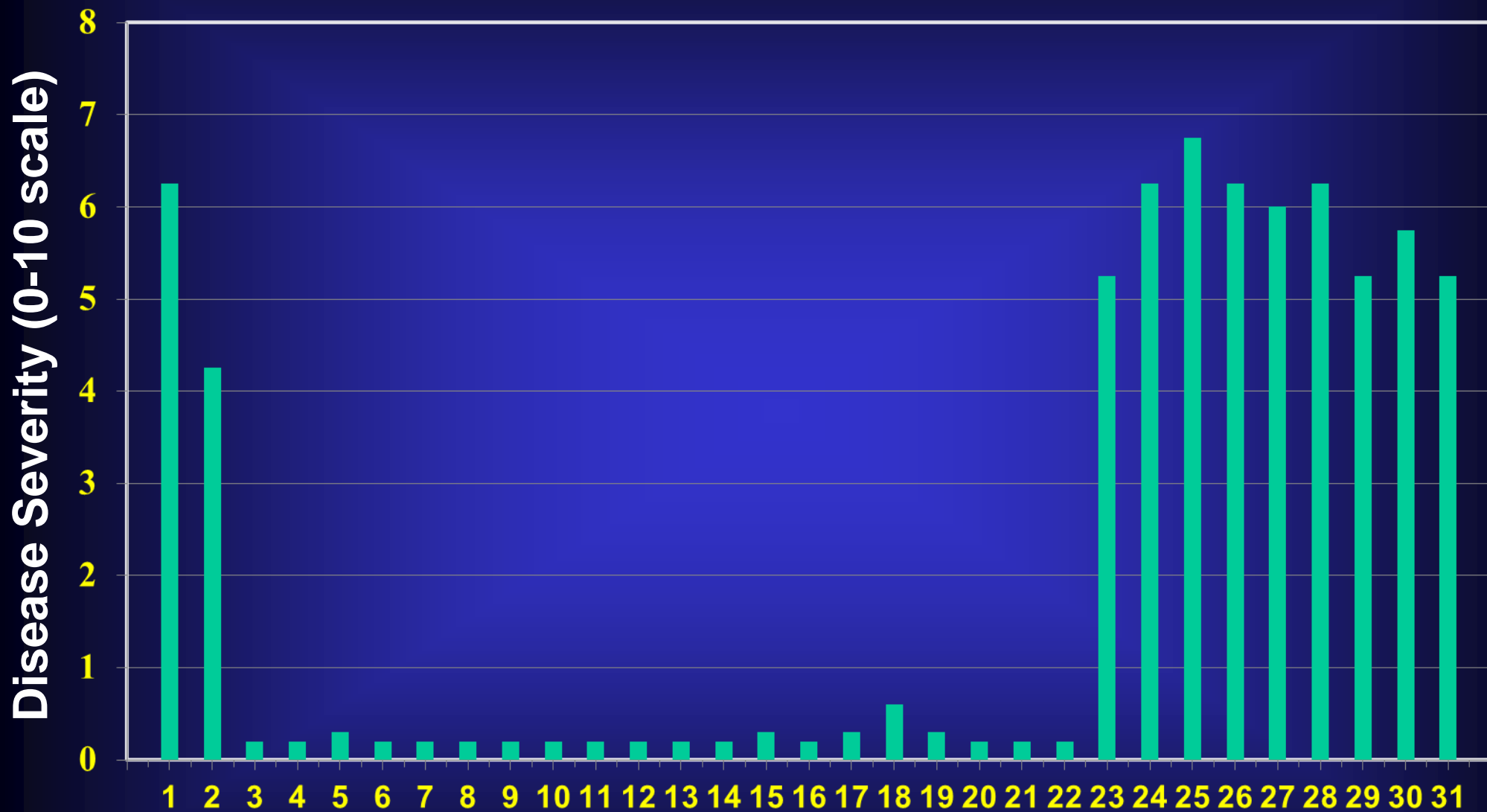
Conventional Treatments

No.	Treatment
14	Ranman + 0.125% (v:v) Induce
15	Ranman + ProPhyt + 0.125% (v:v) Induce
16	Revus + 0.125% (v:v) Induce
17	Revus + ProPhyt + 0.125% (v:v) Induce
18	Ridomil Gold Copper + ProPhyt +0.125% (v:v) Induce
19	Tanos + 0.125% (v:v) Induce
20	Tanos + ProPhyt + 0.125% (v:v) Induce
21	Quadris + ProPhyt + Induce <i>alt.</i> Revus + ProPhyt + Induce <i>alt.</i> Ranman + ProPhyt + Induce
22	Quadris + ProPhyt + Induce <i>alt.</i> Revus + ProPhyt + Induce <i>alt.</i> Tanos + ProPhyt +Induce

Organic Treatments

No.	Treatment
23	No Treatment
24	Milstop
25	Armicarb
26	Bordeaux
27	Oxidate
28	Regalia
29	Safetside + Sportec
30	Actinovate
31	EF400
32	Regalia + Safetside

Basil Downy Mildew – 2010 Experiment



Treatments: 1=control; 2=Bravo Weather Stik;
3-22, conventional treatments; 23-31, organic treatments

Basil Downy Mildew Control

- Basil downy mildew is effectively controlled by fungicides
- Fungicides: Forum, gavel, presidio, Quadris, Ranman, Revus, Tanus, and ProPhyt effectively controlled the disease in 2010
- The above-mentioned fungicides may not be as effective in the future
- Chlorothalonil alone is not effective
- Induce may not be needed with fungicides
- Organic treatments were not effective

Downy Mildew of Basil in Illinois

- **Why downy mildew of basil occurred in Illinois in 2009?**

Because the pathogen reached Illinois for the first time

- **Will downy mildew of basil be an annually-occurring disease in Illinois?**

It occurred in 2010 and will likely occur every year. Illinois conditions are favorable for downy mildew of basil

QUESTIONS